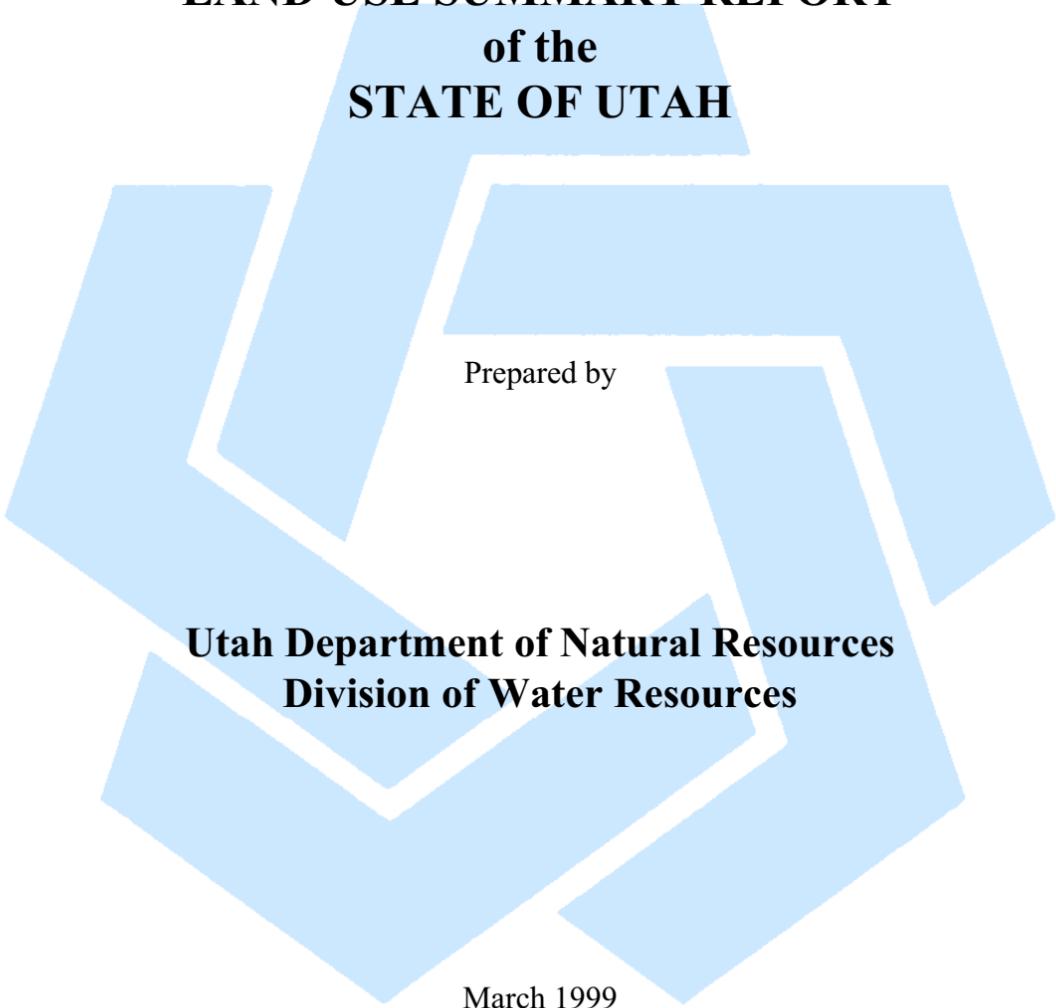


Water-Related  
Land Use  
Inventories

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Utah

*State  
Summary*



**A WATER-RELATED  
LAND USE SUMMARY REPORT  
of the  
STATE OF UTAH**

Prepared by

**Utah Department of Natural Resources  
Division of Water Resources**

March 1999

Errata: Use legend on Figure 50  
(page 78) for Figures 3, 7, 11, 15,  
19, 23, 27, 31, 39, 43 and 47.

## ACKNOWLEDGMENTS

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This report was reviewed by a committee composed of Larry Anderson, Paul Gillette, Dennis Strong, Gene Bigler, Norm Stauffer, Lloyd Austin, Ron Ollis, and Jim Stephens.

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D. Larry Anderson, Director

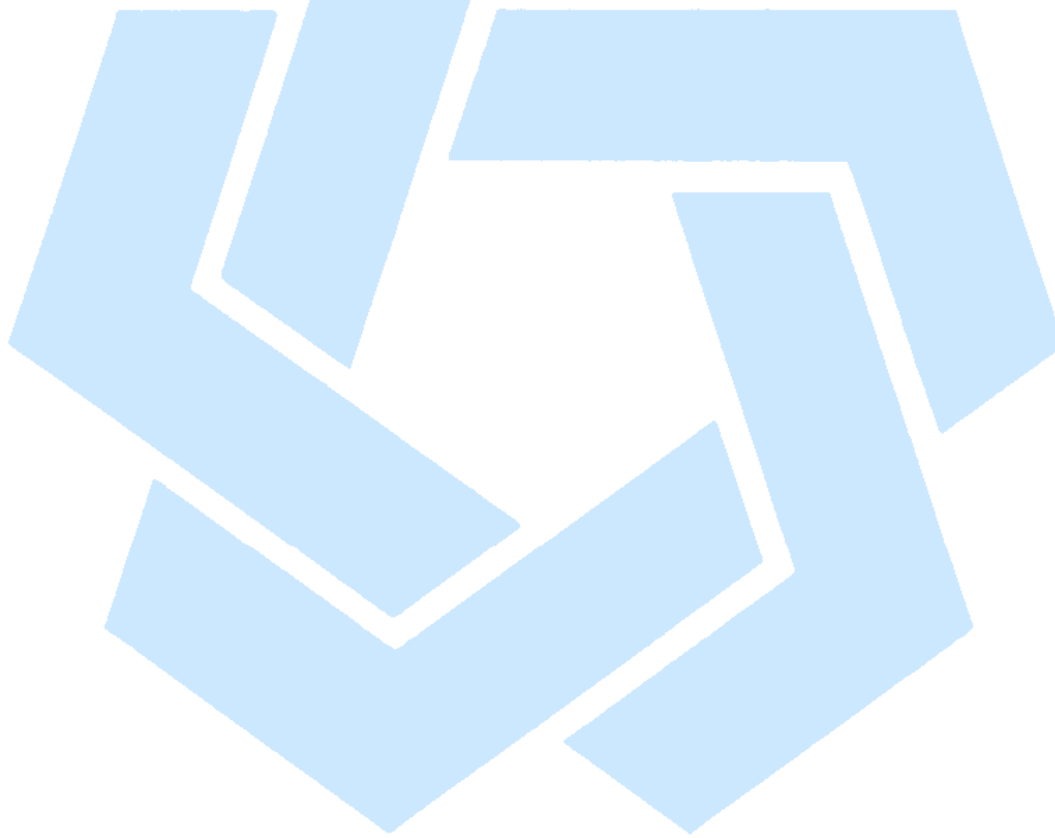
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## INTRODUCTION

### Authority

In the 1963 general session, the Utah State Legislature charged the Division of Water Resources with the responsibility of developing a State Water Plan. This plan was to coordinate and direct the activities of state and federal agencies concerned with Utah's water resources. As a part of this objective, the Division of Water Resources continually assesses the water-related land use of the state. This data includes the kinds and extent of irrigated crops and information on phreatophytes, wet/open water areas, and residential/industrial areas.

### Early Methodology

The methodology used by the division over the past 30-plus years in conducting water-related land use studies has varied with regard to the procedures used, detail, etc. Earlier inventories were prepared using large format vertical-aerial photographs supplemented with field surveys to label boundaries, vegetation types, and other water use information.

After identifying crops and labeling photographs, the information was transferred onto a base map and then planimeted or "dot-counted" to determine the acreage. Tables for individual townships and ranges were prepared showing the amount of land in each land use category within each section. Data were then available for use in preparing water budgets.

In the early 1980s, the division began updating its methodology for collecting water-related land use data to take advantage of the rapidly growing fields of remotely sensed data and computerized Geographic Information Systems (GIS).

For several years, the division contracted with the University of Utah Research Institute, Center for Remote Sensing and Cartography

(CRSC), to prepare water-related land use inventories. During this period, water-related land use data was obtained by using high altitude color infrared photography and laboratory interpretation, with field checking.

### Present Methodology

In March 1984, several division staff members visited the California Department of Water Resources to observe its methodology for collecting water-related land use data for state water planning purposes. The division, based on its review of the California methodology and its own experience, developed a water-related land use inventory program. This program includes the use of 35mm slides, USGS 7-1/2 minute quadrangle maps, field-mapping using base maps produced from the 35mm photography and a computerized geographic information system to process, store and retrieve land use data.

The first step in a water-related land use inventory is to identify areas to be covered with aerial photography for any individual year. These areas are identified on maps of suitable scale (usually 1:100,000) using previous land use studies and other available information such as maps generated from high altitude color infrared photography or Landsat.

The second step is to photograph the identified areas using 35mm slide film. The division specifies that aerial photographs be obtained using an aircraft carrying a high quality 35mm single lens reflex camera mounted to focus along a vertical axis to the earth. A 24mm lens is required and photos must be taken between 6,000 and 6,500 feet above the ground. This procedure allows each slide to cover a little more than one square mile with approximately 30 percent overlap on the wide side of the slide and 5 percent on the slide's narrow side. The slides are then indexed according to a flight-line number, slide number, latitude and longitude.

All 35mm slides are stored in files at the division offices and cataloged according to township, range and section, and quadrangle map location.

The third step is to trace boundaries of water-related areas from the slide to USGS 7-1/2 minute quadrangle maps using a standard slide projector with a 100-200mm zoom lens. The image is directed from the projector, located below a glass table top, to a 45 degree first surface mirror to the back of a quadrangle map. The image showing through the map is adjusted to the map scale with the zoom lens. Field boundaries and other water-use boundaries are then traced on the 7-1/2 minute quadrangle map. At the same time, the technician attempts to identify the category of land use or land cover and uses a code for the appropriate category in each water use area on the field map.

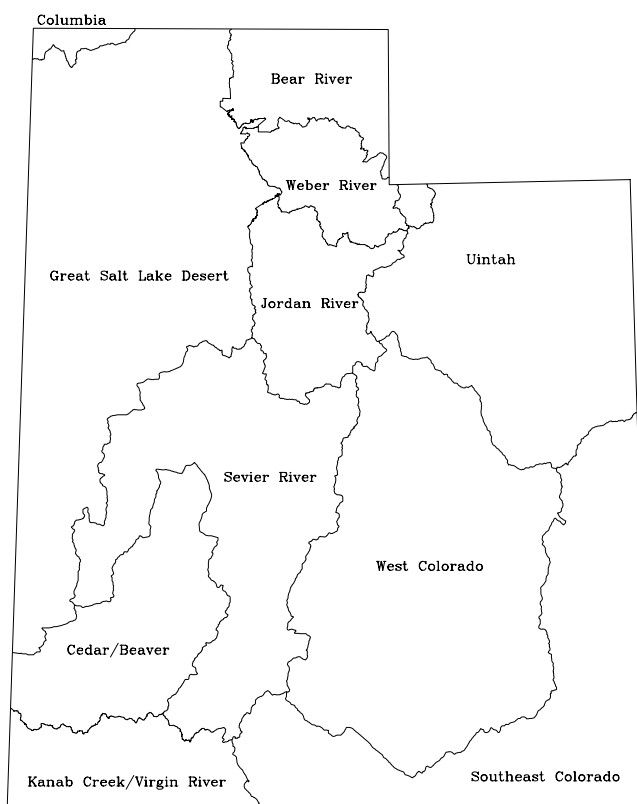
The fourth step is for a team (usually two people) to use the map in the field to check the boundaries and land use data on the 7-1/2 minute quadrangles and mark in red the actual land use or land cover category if it is different than the category originally identified.

The last step is to digitize and process the field data using ARC/INFO software developed by Environmental Systems Research Institute (ESRI). All processed data is filed in the State Geographic Information Database (SGID) maintained by the State Automated Geographic Reference Center (AGRC). Once processed and checked, the data in the SGID become available for use in water resource planning studies.

In conducting water-related land use inventories, the division attempts to inventory all lands or areas that consume or evaporate water other than natural precipitation. Wet/open water areas and dry land agriculture areas are mapped if they are within or border irrigated lands. Acres shown in the table reflect only the numbers of acres mapped, but may not reflect the total numbers of acres in the basin or county. Wet/open water areas not mapped are often added to the data from other sources when preparing water budgets. The salt water

category includes the Great Salt Lake, evaporation ponds within the shoreline of the Great Salt Lake such as those at MAGCORP or Great Salt Lake Minerals Company, the West Desert Pond, and return flows from the pond to the main body of the Great Salt Lake. This acreage (obtained from existing maps and LANDSAT imagery) represents the Great Salt Lake at a surface elevation of 4,200 feet and the West Desert Pond at a maximum surface elevation of 4,217 feet. Evaporation ponds outside the shoreline of the Great Salt Lake such as those used by Kennecott or American Salt are not included in the salt water category but are included in the wet/open water categories.

During land use inventories, the division uses 11 hydrologic basins as the basic collection units (see Figure 1). Basins are further broken down into study areas and then subareas. County data is obtained from the basin data.



**Figure 1.** Hydrologic Basins within the state of Utah.

The water-related land use data presented in this report summarizes more than 2,982,000 acres of land inventoried by the division between 1985 and 1996. This represents only about 4.7 percent of the state. Areas not inventoried are mainly desert, rangeland and forested areas. Of the inventoried acres, 1,572,673 were irrigated lands (including land that was fallow, idle or sub-irrigated), and 393,307 were residential/industrial areas (including farmsteads and rural housing). Table 1 contains the division standard cover types and codes for the water-related land use program. This standard legend was adopted in 1988. Data collected before that date has been converted to the 1988 code.

This document represents the first statewide report of data collected by the Division of Water Resources under its water-related land use inventory program. In this report, each basin includes a small discussion, a map of inventoried land and tabular data grouped by subarea and county.

The tabular data of each basin is generally contained in three tables. The first of these tables summarizes the division's various inventories of the basin. It includes data and dates of previous and projected inventories along with appropriate footnotes.

The second table presents the land cover by Study Area. Each column in the table records an area identifier number under the name of a particular area. The identifier number exists to aid in the accounting of the data. This number describes the basin-to-subarea breakdown of the data. The identifier is used in the first data set from Table 3, in which '00' refers to the Columbia Basin and '01' refers to the Raft River Study Area.

The third table is a summary of land cover by county. The table illustrates the counties that have some or all of their land in the particular basin. In the Columbia River Basin and the Lower Jordan Study Area, the data for the respective basin and county are the same. In

these two cases, this third table is omitted to avoid repetition.

The last section of the report is a statewide summary of the basin and county data. The various tables show the total land cover data by basin and by county and cross-reference the common data between the various basins and counties.

**TABLE 1**  
**LIST OF COVER TYPES AND CODES FOR WATER-RELATED LAND USE INVENTORIES**

| Code   | Cover Type                       | Comments/Explanations             | Code   | Cover Type   | Comments/Explanations              |
|--------|----------------------------------|-----------------------------------|--------|--|------------------------------------|
| I      | Cropland                         | (Rotation Crops)                  | IIC    | Wet Flats  | (Mud flats w/little or no vgttn.)  |
| IA     | Irrigated Cropland               |                                   | IID    | Shrub Aspect   | (Salt Brush, Sagebrush)            |
| IA1    | Horticulture & Specialty Crops   |                                   | IIE    | Riparian   |                                    |
| IA1a   | Fruit                            | (Orchards)                        | IIE1   | Forested Aspect                                      | (Cottonwoods, Birch)               |
| IA1a1  | Cherry                           |                                   | IIE2   | Shrub Aspect   | (Willows)                          |
| IA1a2  | Apple                            |                                   | IIF    | Open Water   |                                    |
| IA1a3  | Peach                            |                                   | IIF1   | Streams  |                                    |
| IA1a4  | Pear                             |                                   | IIF2   | Reservoirs   | (Includes livestock ponds)         |
| IA1a5  | Apricot                          |                                   | IIF3   | Ponds & Lakes  | (Includes some high mnt. res.)     |
| IA1a6  | Other                            |                                   | IIF4   | Other  |                                    |
| IA1b   | Nuts                             | (Groves)                          | IIF4a  | Temporary Flooded                                    | (Not normally flooded)             |
| IA1b1  | Walnut                           |                                   | IIF4b  | Sewage Lagoon  | (Lagoon/Pond from sewage system)   |
| IA1b2  | Pecan                            |                                   | IIF4c  | Evaporation Pond                                     | (Tailing, Salt/Mineral Ponds)      |
| IA1b3  | Other                            |                                   | IIF5   | Salt Water   | (Great Salt Lake, etc.)            |
| IA1c   | Vineyard                         | (Grapes)                          | III    | Range Land and Forest Land                           |                                    |
| IA1d   | Bush Fruit                       |                                   | IIIA   | Alpine Plant Communities                             |                                    |
| IA1e   | Berries                          |                                   | IIIB   | Conifer  |                                    |
| IA1f   | Other Horticulture               | (Nurseries)                       | IIIB1  | Douglas Fir - White Fir                              |                                    |
| IA1g   | Other Specialty Crops            |                                   | IIIB2  | Ponderosa Pine                                       |                                    |
| IA2    | Row and Close Grown Crops        |                                   | IIIB3  | Fir - Spruce   |                                    |
| IA2a   | Grain                            |                                   | IIIB4  | Lodgepole Pine                                       |                                    |
| IA2a1  | Corn                             |                                   | IIIB5  | Pinion Pine - Juniper                                |                                    |
| IA2a2  | Sorghum                          |                                   | IIIB6  | Other  |                                    |
| IA2a3  | Wheat                            |                                   | IIIC   | Deciduous  |                                    |
| IA2a4  | Barley                           |                                   | IIIC1  | Aspen  |                                    |
| IA2a5  | Oats                             |                                   | IIIC2  | Mountain Brush                                       | (Oak Brush, Maples, Chaparral)     |
| IA2a6  | Other Grains                     |                                   | IIIC3  | Other  |                                    |
| IA2b   | Vegetables                       |                                   | IIID   | Grass Aspect   |                                    |
| IA2b1  | Potatoes                         |                                   | IIID1  | Dry Pastures - Improved                              | (Chained and reseeded)             |
| IA2b2  | Onions                           |                                   | IIID2  | Native Grasses                                       |                                    |
| IA2b3  | Beans                            |                                   | IIID3  | Other  | (Forbs)                            |
| IA2b4  | Tomatoes                         |                                   | IIIE   | Shrub Aspect   |                                    |
| IA2b5  | Sweet Corn                       |                                   | IIIE1  | Northern Desert Shrub                                |                                    |
| IA2b6  | Other                            | (Melons, Squash, Etc.)            | IIIE1a | Sagebrush  | (Shadscale, Greasewood, Halogeton) |
| IA3    | Forage Crops                     |                                   | IIIE1b | Other  |                                    |
| IA3a   | Alfalfa                          |                                   | IIIE2  | Southern Desert Shrubs                               |                                    |
| IA3b   | Grass Hay                        |                                   | IIIE2a | Creosote Bush  |                                    |
| IA3c   | Grass/Turf                       | (Turf Farms)                      | IIIE2b | Other  | (Forbs, Annual Grasses)            |
| IA3d   | Pasture                          |                                   | IIIE3  | Salt Desert Shrubs                                   |                                    |
| IA3e   | Other                            |                                   | IIIE3a | Shascale   |                                    |
| IA4    | Other                            |                                   | IIIE3b | Greasewood   |                                    |
| IA4a   | Fallow                           | (Plowed or disked.)               | IIIE3c | Saltbrush  |                                    |
| IA4b   | Idle                             | (Overgrown more than one season.) | IIIE3d | Desert Molley  |                                    |
| IB     | Non-Irrigated Cropland           | (Rotation Crops)                  | IIIE3e | Other  | (Halogeton)                        |
| IB1    | Row and Close-Grown Crops        |                                   | IV     | Barren Lands   |                                    |
| IB1a   | Grain, Beans, Seeds              |                                   | IVA    | Bare Soil/Sand                                       |                                    |
| IB1a1  | Wheat                            |                                   | IVA1   | Dry Salt Flats                                       |                                    |
| IB1a2  | Other Grains                     | (Barley, Etc.)                    | IVA2   | Beaches  |                                    |
| IB1a3  | Dry Beans                        |                                   | IVA3   | Sandy Areas Other Than Beaches                       | (Desert Sand Dunes)                |
| IB1a4  | Safflower                        |                                   | IVA4   | Other  |                                    |
| IB1a5  | Other                            |                                   | IVB    | Rock Outcrops  |                                    |
| IB2    | Hayland Crops                    |                                   | IVC    | Excavated Lands (Strip Mines, Quarries, Gravel Pits) |                                    |
| IB2a   | Alfalfa                          |                                   | IVD    | Other  |                                    |
| IB2b   | Pasture                          |                                   | V      | Built-Up Land  |                                    |
| IB2c   | Other                            |                                   | VA     | Farmsteads   |                                    |
| IB3    | Other                            |                                   | VA1    | Buildings/Homes                                      |                                    |
| IB3a   | Fallow                           | (Plowed, Stubble, Mulch)          | VA2    | Open Spaces  | (Feed Lots, Etc.)                  |
| IB3b   | Idle                             | (Overgrown more than one season.) | VB     | Residential  |                                    |
| II     | Grassy/Phreato./Open Water Areas |                                   | VB1    | Buildings/Homes                                      | (High Density)                     |
| IIA    | Grassy Aspect                    |                                   | VB2    | Buildings/Homes                                      | (Low Density)                      |
| IIA2a  | Irrigated                        |                                   | VB3    | Open Spaces  | (Parks, Golf Courses)              |
| IIA2a1 | Pasture                          | (Subject to spring flooding.)     | VB4    | Idle Spaces  | (Not Irrigated)                    |
| IIA2a2 | Hayland                          | (Subject to spring flooding.)     | VC     | Commercial/Industrial                                |                                    |
| IIA2b  | Non-Irrigated                    |                                   | VC1    | Commercial   |                                    |
| IIA2b1 | Pasture                          | (Receives subsurface water.)      | VC2    | Industrial   |                                    |
| IIA2b2 | Hayland                          | (Receives subsurface water.)      | VC3    | Open Spaces  |                                    |
| IIA2c  | Non-Agricultural Use             | (Receives subsurface water.)      | VD     | Transportation, Communications, Utilities            |                                    |
| IIB    | Cattail/Bulrush Aspect           |                                   | VE     | Other  |                                    |

## BASIN WATER-RELATED LAND USE DATA

### COLUMBIA BASIN

#### Basin Description

The Columbia Basin stretches across most of Washington, Oregon, Idaho, Montana, and parts of Nevada, Wyoming and Canada. Utah claims only a small portion of the basin that is bounded on the west by the Utah/Nevada state line, and on the north by the Utah/Idaho state line. Kelton Pass generally defines the eastern boundary of Utah's portion of the basin, while the crest (elevation 9960 ft.) of the Raft River Mountains forms the southern boundary. Utah's portion of the Columbia Basin falls entirely within Box Elder County and is divided into two study areas: Raft River and Goose Creek. Figure 2 locates Utah's portion of the Columbia Basin. The figure also delineates Utah's county lines.

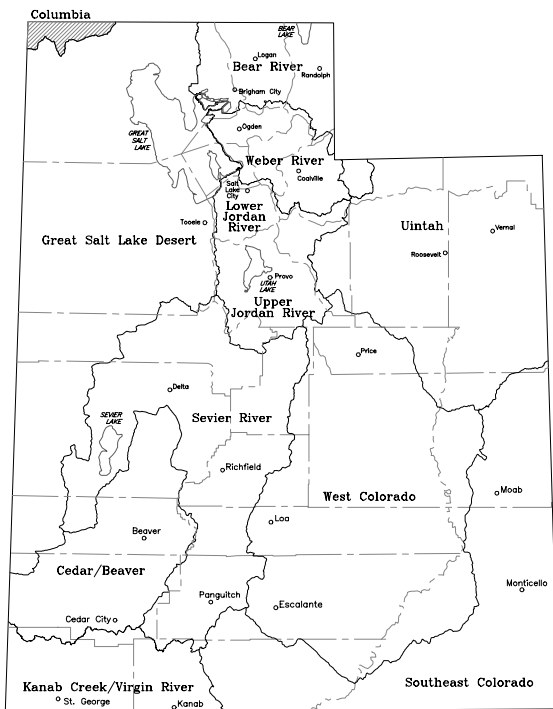


Figure 2. Location of the Columbia Basin.

The climate of the basin varies widely within a given year. Temperature norms range from a January minimum of 8 °F to a January maximum of more than 32 °F. During July, normal temperatures vary from about 52 °F to more than 84 °F. Annual normal precipitation amounts are found from 10 inches to more than 30 inches.

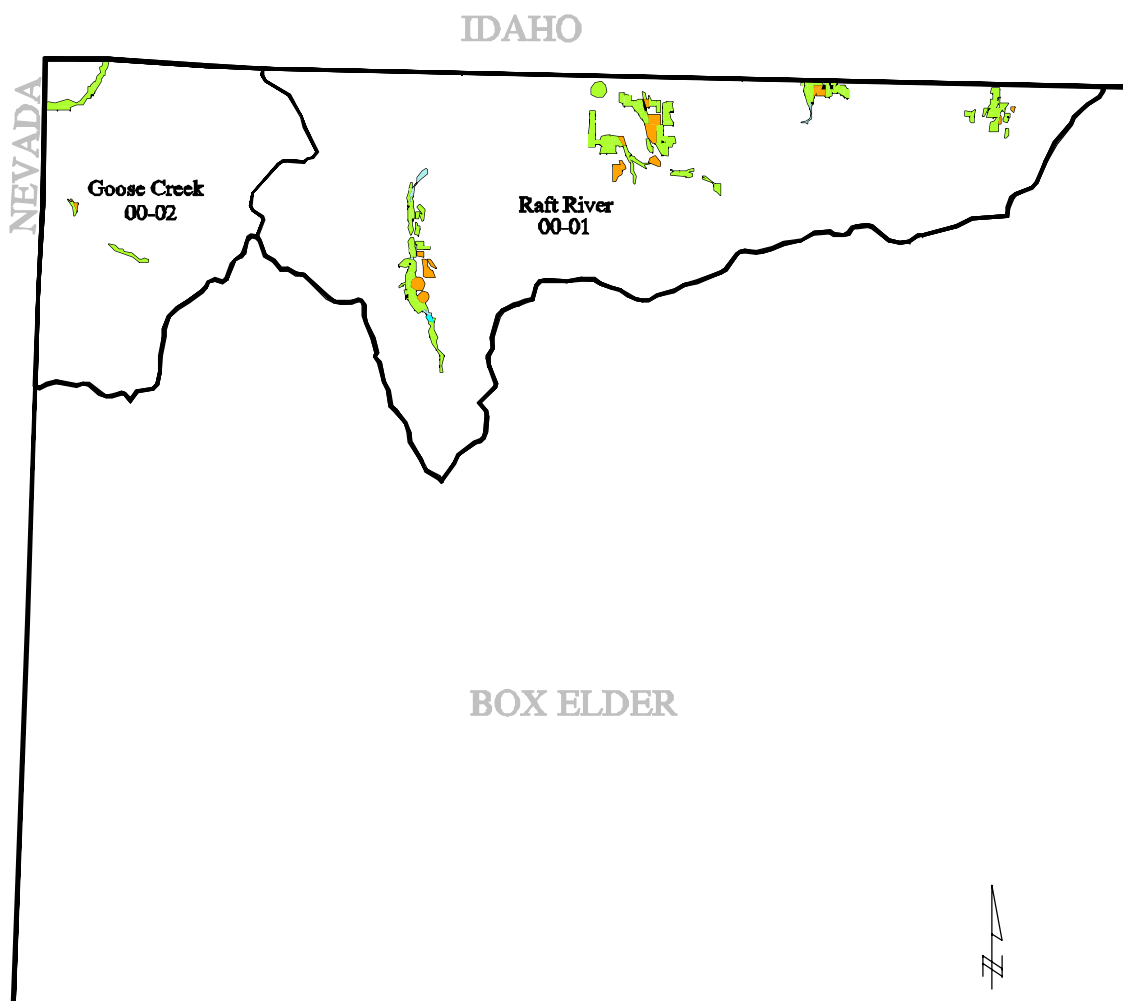
Figure 3 illustrates the water-related land use of the basin. The figure indicates that the majority of the basin's land use occurs in and around Lynn, Yost and Standrod.

#### Data Collection

In the summer of 1989, the Division of Water Resources inventoried water-related lands in Utah's portion of the Columbia Basin. By 1989, excess water from the floods of 1983 through 1987 had receded and the basin began a series of relatively dry years. Therefore, land use categories such as idle and fallow fields may be somewhat over represented in the data due to the lack of water supplied to the basin.

#### Data Summary

The Division of Water Resources inventoried more than 5,870 acres of land in the basin. This represents about 2.3 percent of the entire Utah portion of the Columbia River Basin (approximately 252,960 acres). Areas not inventoried are mainly national forests and rangeland. Of the 5,870 inventoried acres, 5,315 are irrigated cropland, 109 are grasses and hays which receive subsurface irrigation, 207 are wet/open water areas, and 97 are residential/industrial areas. Table 2 summarizes the division's 1989 land use data. It also notes that additional data were collected in 1996.



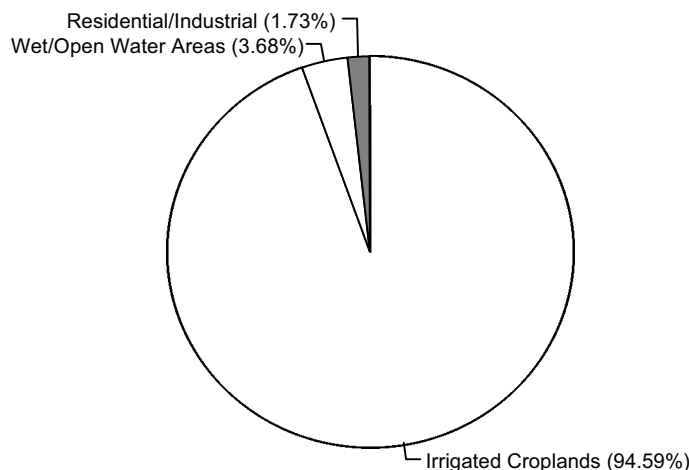
**Figure 3. Mapped Water-Related Land Use of the Columbia Basin.**

| <b>Table 2</b><br><b>Columbia Basin Land Use Summary</b><br>(Acres) |       |                   |
|---|-------|-------------------|
| Land Use  | 1989  | 1996 <sup>1</sup> |
| Irrigated Croplands   | 5,315 |                   |
| Wet/Open Water Areas  | 207   |                   |
| Residential/Industrial Areas  | 97    |                   |

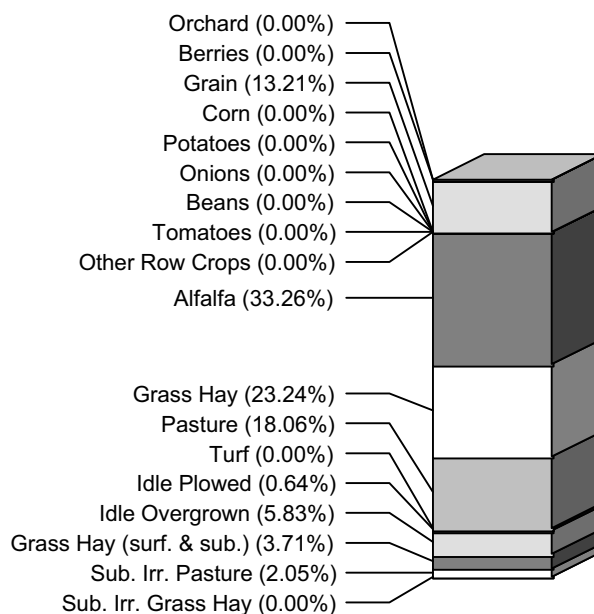
<sup>1</sup> Data were collected but not yet analyzed.

The division has further classified the water-related land use within the basin. Figure 4 delineates the irrigated cropland, wet/open water areas, and residential/industrial categories found in the division's land use data.

Additionally, Figure 5 represents data from the category of surface irrigated cropland. The data are arranged into 18 different subcategories.



**Figure 4.** Delineation of Water-Related Land Use Categories within the Columbia Basin (1989 Data).



**Figure 5.** Breakdown of Surface Irrigated Cropland within the Columbia Basin (1989 Data).

Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Table 3. The table contains the data by the two study areas located within the basin. The data are not listed by county for the Columbia basin since the entire basin falls within Box Elder County.

**TABLE 3**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE COLUMBIA BASIN**  
**(1989 Data - Units in Acres)**

| Code                                     | Cover                                      | Raft River<br>00-01 | Goose Creek<br>00-02 | Basin<br>Total |
|--|--|---------------------|----------------------|----------------|
| <b><i>Surface Irrigated Cropland</i></b> |  |                     |                      |                |
| IA1a                                     | Orchard                                    | 0                   | 0                    | 0              |
| IA1e                                     | Berries                                    | 0                   | 0                    | 0              |
| IA2a                                     | Grain                                      | 702                 | 0                    | 702            |
| IA2a1                                    | Corn                                       | 0                   | 0                    | 0              |
| IA2b1                                    | Potatoes                                   | 0                   | 0                    | 0              |
| IA2b2                                    | Onions                                     | 0                   | 0                    | 0              |
| IA2b3                                    | Beans                                      | 0                   | 0                    | 0              |
| IA2b4                                    | Tomatoes                                   | 0                   | 0                    | 0              |
| IA2c                                     | Other Row Crops                            | 0                   | 0                    | 0              |
| IA3a                                     | Alfalfa                                    | 1,717               | 51                   | 1,768          |
| IA3b                                     | Grass Hay                                  | 691                 | 543                  | 1,234          |
| IA3d                                     | Pasture                                    | 960                 | 0                    | 960            |
| IA3c                                     | Grass/Turf                                 | 0                   | 0                    | 0              |
| IA4a                                     | Idle Plowed                                | 34                  | 0                    | 34             |
| IA4b                                     | Idle Overgrown                             | 310                 | 0                    | 310            |
| IIA1a                                    | Pasture (surf. & sub.)                     | 198                 | 0                    | 198            |
|  | <b><i>Subtotal</i></b>                     | <b>4,612</b>        | <b>594</b>           | <b>5,206</b>   |
| <b><i>Sub-Irrigated Cropland</i></b>     |  |                     |                      |                |
| IIA2a                                    | Sub. Irr. Pasture                          | 0                   | 109                  | 109            |
| IIA2b                                    | Sub. Irr. Grass Hay                        | 0                   | 0                    | 0              |
|  | <b><i>Subtotal</i></b>                     | <b>0</b>            | <b>109</b>           | <b>109</b>     |
|  | <b><i>Total Irrigated Croplands</i></b>    | <b>4,612</b>        | <b>703</b>           | <b>5,315</b>   |
| <b><i>Wet/Open Water Areas</i></b>       |  |                     |                      |                |
| IIC                                      | Wet Flats                                  | 129                 | 0                    | 129            |
| IIE                                      | Riparian                                   | 34                  | 0                    | 34             |
| IIF                                      | Open Water                                 | 44                  | 0                    | 44             |
| IIF4                                     | Other Water                                | 0                   | 0                    | 0              |
| IIF4a                                    | Temp. Flooded                              | 0                   | 0                    | 0              |
| IIF4b                                    | Sewage Lagoon                              | 0                   | 0                    | 0              |
|  | <b><i>Total Wet/Open Water Areas</i></b>   | <b>207</b>          | <b>0</b>             | <b>207</b>     |
| <b><i>Residential/Industrial</i></b>     |  |                     |                      |                |
| VA1                                      | Bldgs/Homes (rural)                        | 15                  | 3                    | 18             |
| VA2                                      | Open Spaces                                | 75                  | 0                    | 75             |
| VC1                                      | Commercial                                 | 4                   | 0                    | 4              |
|  | <b><i>Total Residential/Industrial</i></b> | <b>94</b>           | <b>3</b>             | <b>97</b>      |
|  | <b><i>Total Land Use/Land Cover</i></b>    | <b>4,913</b>        | <b>706</b>           | <b>5,619</b>   |

## References

1. *Columbia-North Pacific Region, Comprehensive Framework Study of Water and Related Lands: The Region, Appendix II*, Pacific Northwest River Basins Commission, June 1969.
2. *Columbia Basin - Final Report for 35mm Photography*, Mapping and Analytical Photographic Services Inc., September 1989.
3. *Controlled 35mm Aerial Photography Water-Related Land Use Inventory for the Bear River Drainage and Northern Utah - Final Report*, Wojcik Technical Services, August 1996.
4. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
5. *Landform Map of Utah*, Merrill K. Ridd, 1961.
6. *Water-Related Land Use Inventories, Columbia Basin*, Utah Division of Water Resources, June 1991.

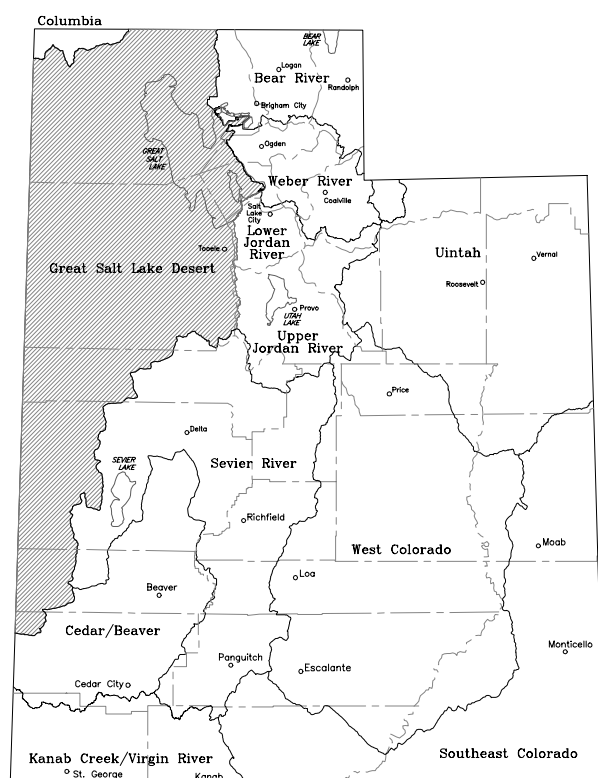


## GREAT SALT LAKE DESERT BASIN

### Basin Description

The Great Salt Lake Desert Basin covers a large area of the western portion of Utah. Roughly three-fourths of the Utah/Nevada state line forms the western boundary of the basin. The crest of the Raft River Mountains coupled with the Utah/Idaho state line form the basin's northern boundary. Features such as the Promontory Mountains, Great Salt Lake, Oquirrh Mountains, Wah Wah Mountains, and several other smaller mountain ranges comprise the southeastern boundary.

The basin includes approximately 18,003 square miles of land lying between 37° 50' to 42° 00' latitude, and 112° 20' to 114° 00' longitude. Figure 6 locates the Great Salt Lake Desert Basin within Utah's borders.



**Figure 6.** Location of the Great Salt Lake Desert Basin.

The basin spans all or part of nine counties: Beaver, Box Elder, Davis, Iron, Juab, Millard, Salt Lake, Tooele and Weber.

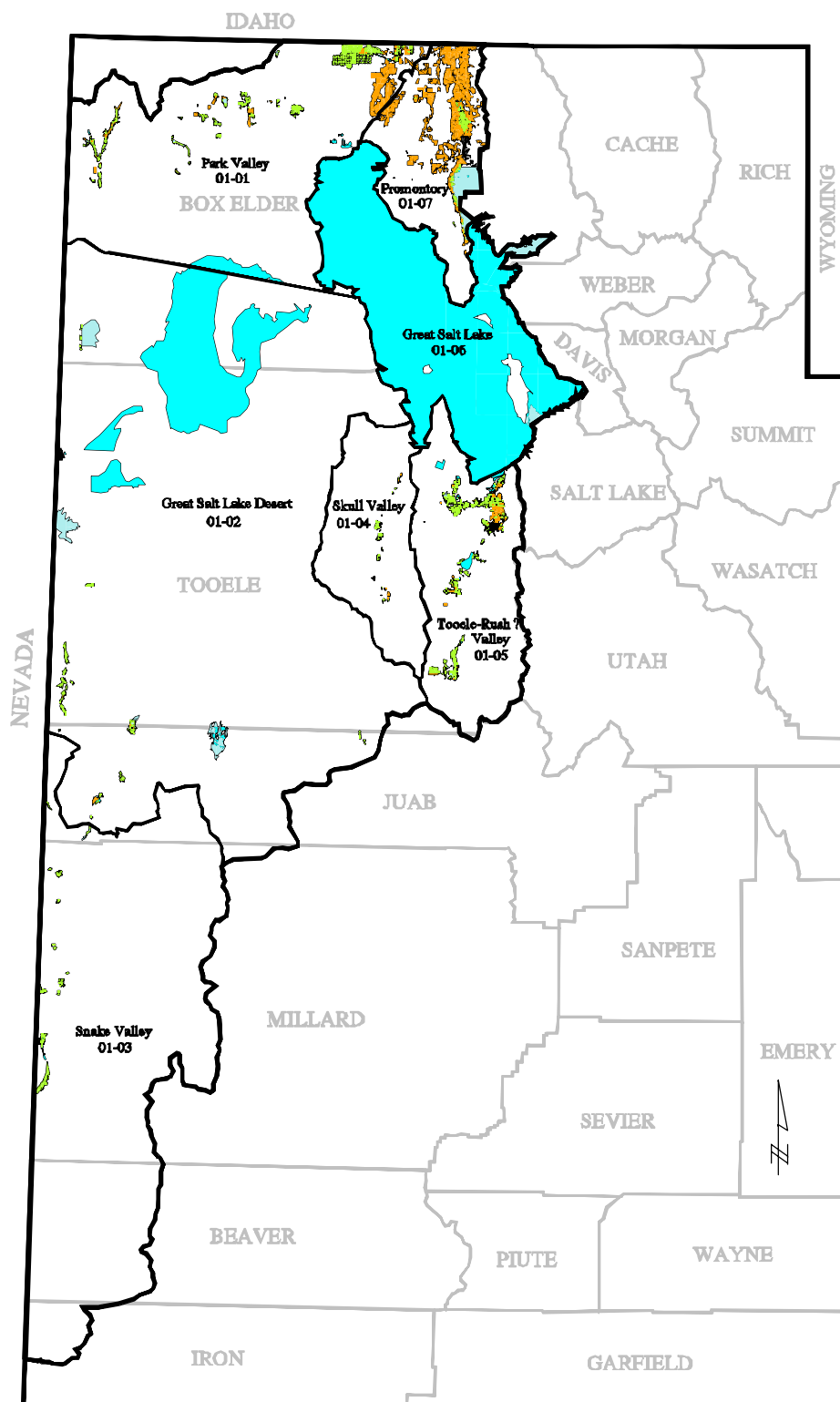
The basin is characterized by small north/south trending mountain ranges separated by large areas of low-lying deserts. Much of these desert areas are the previous home of ancient Lake Bonneville. Today's Great Salt Lake is the desiccated remains of that lake. As Lake Bonneville receded, it deposited coarser-grained materials at the base of mountain ranges and finer-grained materials on the low-lying areas of the desert floor. The soils of the basin that are best suited for agriculture are typically deep and range in texture from moderately fine to moderately coarse. These areas are located primarily on the fans and terraces adjacent to the mountain ranges of the basin. The topography of these areas is gently sloping and generally ranges in elevation from 4,400 feet to 5,600 feet.

The climate of the basin is relatively dry and warm. Precipitation norms range from more than 30 inches at Ibapah Peak in the Deep Creek Range to less than 6 inches on the desert floors. Normal temperatures range from less than 10 ° F to 40 ° F in January and 44 ° F to more than 96 ° F in July.

Figure 7 illustrates the water-related land use of the basin. It also depicts hydrologic study areas and county lines in the basin. Seven study areas form the basin: Park Valley, Great Salt Lake Desert, Snake Valley, Skull Valley, Tooele-Rush Valley, Great Salt Lake, and Promontory. The basin also includes Golden Spike National Historical Site. The basin is used extensively as a military operations area.

### Data Collection

In the summer of 1989, the Division of Water Resources inventoried water-related lands throughout the Great Salt Lake Desert Study Unit. By 1989, excess water from the floods of



**Figure 7. Mapped Water-Related Land Use of the Great Salt Lake Desert Basin.**

1983 through 1987 had receded and the basin began a series of relatively dry years. Therefore, land use categories such as idle and fallow fields may be somewhat over represented.

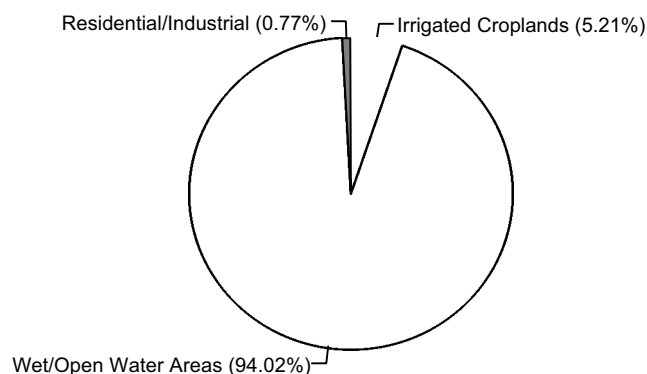
## Data Summary

The Division of Water Resources inventoried 1,818,873 acres of land in the Great Salt Lake Basin. This represents 15.8 percent of the entire basin. Areas not inventoried are mainly desert, rangeland or national forests. Of the inventoried acres, 88,025 were irrigated lands (including land that was fallow, idle, or sub-irrigated), 1,595,858 were wet/open water areas (excluding the Great Salt Lake and the West Desert Pond), and 13,078 were residential or industrial areas (including farmsteads and rural housing). Table 4 summarizes the division's 1989 land use data. It also indicates additional data were collected in 1996. This process will be completed in 1997.

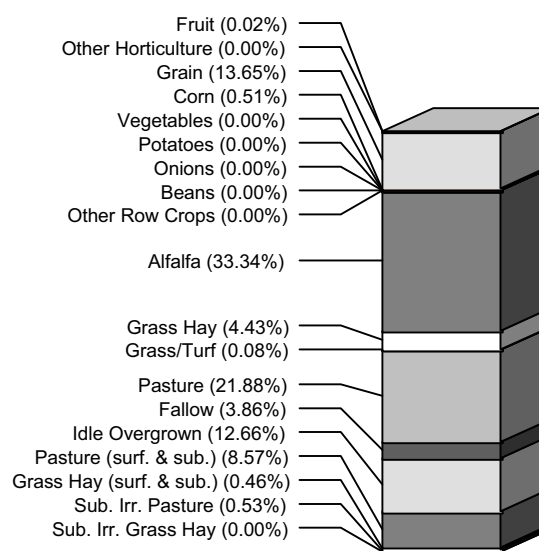
| Table 4<br>Great Salt Lake Desert Basin Land Use Summary<br>(Acres) |                        |                      |
|---|------------------------|----------------------|
| Land Use  | 1989                   | 1996-97 <sup>2</sup> |
| Irrigated Croplands   | 88,025                 |                      |
| Wet/Open Water Areas  | 1,595,858 <sup>1</sup> |                      |
| Residential/Industrial Areas  | 13,078                 |                      |

<sup>1</sup> Includes the Great Salt Lake and West Desert Pond.  
<sup>2</sup> Next planned inventory

The division has further classified the water-related land use within the basin. Figure 8 delineates the three categories of water-related land use listed above by percentage. Figure 9 represents the basin's surface irrigated cropland. The data are arranged into 19 subcategories.



**Figure 8.** Delineation of Water-Related Land Use Categories within the Great Salt Lake Desert Basin (1989 Data).



**Figure 9.** Breakdown of Surface Irrigated Cropland within the Great Salt Lake Desert Basin (1989 Data).

Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Table 5 by study area and Table 6 by county.

**TABLE 5**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE GREAT SALT LAKE DESERT BASIN**  
**(1989 Data - Units in Acres)**

| Code                              | Cover                               | Park Valley<br>01-01 | Great Salt Lake Desert<br>01-02 | Snake Valley<br>01-03 | Skull Valley<br>01-04 | Tooele-Rush Valley<br>01-05 | Great Salt Lake<br>01-06 | Promontory<br>01-07 | Basin Total      |
|-----------------------------------|-------------------------------------|----------------------|---------------------------------|-----------------------|-----------------------|-----------------------------|--------------------------|---------------------|------------------|
| <b>Surface Irrigated Cropland</b> |                                     |                      |                                 |                       |                       |                             |                          |                     |                  |
| IA1a                              | Fruit                               | 0                    | 0                               | 17                    | 0                     | 2                           | 0                        | 0                   | 19               |
| IA1e                              | Other Horticulture                  | 0                    | 0                               | 0                     | 0                     | 0                           | 0                        | 0                   | 0                |
| IA2a                              | Grain                               | 6,841                | 23                              | 513                   | 47                    | 3,301                       | 0                        | 1,353               | 12,078           |
| IA2a1                             | Corn                                | 0                    | 52                              | 13                    | 0                     | 382                         | 0                        | 0                   | 447              |
| IA2b                              | Vegetables                          | 0                    | 0                               | 0                     | 0                     | 0                           | 0                        | 0                   | 0                |
| IA2b1                             | Potatoes                            | 0                    | 0                               | 0                     | 0                     | 4                           | 0                        | 0                   | 4                |
| IA2b2                             | Onions                              | 0                    | 0                               | 0                     | 0                     | 0                           | 0                        | 0                   | 0                |
| IA2b3                             | Beans                               | 0                    | 0                               | 0                     | 0                     | 0                           | 0                        | 0                   | 0                |
| IA2c                              | Other Row Crops                     | 0                    | 0                               | 0                     | 0                     | 0                           | 0                        | 0                   | 0                |
| IA3a                              | Alfalfa                             | 15,638               | 1,021                           | 2,578                 | 1,554                 | 7,470                       | 0                        | 1,243               | 29,504           |
| IA3b                              | Grass Hay                           | 1,390                | 917                             | 22                    | 48                    | 1,310                       | 0                        | 233                 | 3,920            |
| IA3c                              | Grass/Turf                          | 0                    | 0                               | 0                     | 0                     | 75                          | 0                        | 0                   | 75               |
| IA3d                              | Pasture                             | 3,011                | 4,641                           | 2,533                 | 334                   | 8,189                       | 0                        | 655                 | 19,363           |
| IA4a                              | Fallow                              | 859                  | 0                               | 36                    | 0                     | 2,395                       | 0                        | 123                 | 3,413            |
| IA4b                              | Idle Overgrown                      | 5,946                | 1,517                           | 968                   | 137                   | 2,470                       | 0                        | 169                 | 11,207           |
| IIA1a                             | Pasture (surf. & sub.)              | 434                  | 515                             | 1,057                 | 177                   | 554                         | 0                        | 4,850               | 7,587            |
| IIA1b                             | Grass Hay (surf. & sub.)            | 408                  | 0                               | 0                     | 0                     | 0                           | 0                        | 0                   | 408              |
|                                   | <b>Subtotal</b>                     | <b>34,527</b>        | <b>8,686</b>                    | <b>7,737</b>          | <b>2,297</b>          | <b>26,152</b>               | <b>0</b>                 | <b>8,626</b>        | <b>88,025</b>    |
| <b>Sub-Irrigated Cropland</b>     |                                     |                      |                                 |                       |                       |                             |                          |                     |                  |
| IIA2a                             | Sub. Irr. Pasture                   | 0                    | 317                             | 0                     | 0                     | 72                          | 0                        | 76                  | 465              |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                    | 0                               | 0                     | 0                     | 0                           | 0                        | 0                   | 0                |
|                                   | <b>Subtotal</b>                     | <b>0</b>             | <b>317</b>                      | <b>0</b>              | <b>0</b>              | <b>72</b>                   | <b>0</b>                 | <b>76</b>           | <b>465</b>       |
|                                   | <b>Total Irrigated Croplands</b>    | <b>34,527</b>        | <b>9,003</b>                    | <b>7,737</b>          | <b>2,297</b>          | <b>26,224</b>               | <b>0</b>                 | <b>8,702</b>        | <b>88,490</b>    |
| <b>Wet/Open Water Areas</b>       |                                     |                      |                                 |                       |                       |                             |                          |                     |                  |
| IIB                               | Cattail/Bullrush Aspect             | 507                  | 5,659                           | 0                     | 0                     | 12                          | 0                        | 525                 | 6,703            |
| IIB-E                             | Wet/Vegetation Asp.                 | 0                    | 9,570                           | 0                     | 0                     | 0                           | 26,525                   | 19,262              | 55,357           |
| IIC                               | Wet Flats                           | 118                  | 11,187                          | 13                    | 0                     | 7                           | 28,663                   | 4,409               | 44,397           |
| IIE                               | Riparian                            | 213                  | 347                             | 207                   | 0                     | 425                         | 0                        | 32                  | 1,224            |
| IIF                               | Open Water                          | 1,297                | 1,853                           | 272                   | 10                    | 3,100                       | 149                      | 527                 | 7,208            |
| IIF2                              | Reservoirs                          | 0                    | 0                               | 0                     | 0                     | 0                           | 4,987                    | 0                   | 4,987            |
| IIF4a                             | Temporary Flooded                   | 0                    | 0                               | 0                     | 0                     | 107                         | 1                        | 0                   | 108              |
| IIF4b                             | Sewage Lagoon                       | 0                    | 41                              | 0                     | 0                     | 0                           | 0                        | 8                   | 49               |
| IIF4c                             | Evaporation Pond                    | 0                    | 39,121                          | 0                     | 0                     | 2,572                       | 0                        | 0                   | 41,693           |
| IIF5                              | Salt Water <sup>1</sup>             | 25,057               | 344,076                         | 0                     | 0                     | 121                         | 1,062,585                | 2,293               | 1,434,132        |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>27,192</b>        | <b>411,854</b>                  | <b>492</b>            | <b>10</b>             | <b>6,344</b>                | <b>1,122,910</b>         | <b>27,056</b>       | <b>1,595,858</b> |
| <b>Residential/Industrial</b>     |                                     |                      |                                 |                       |                       |                             |                          |                     |                  |
| VA                                | Farmsteads                          | 525                  | 196                             | 243                   | 150                   | 650                         | 0                        | 407                 | 2,171            |
| VB                                | Residential                         | 202                  | 184                             | 50                    | 14                    | 5,041                       | 0                        | 86                  | 5,577            |
| VB3                               | Open Spaces                         | 3                    | 0                               | 0                     | 0                     | 330                         | 0                        | 0                   | 333              |
| VC                                | Commercial/Industrial               | 40                   | 1,396                           | 13                    | 74                    | 545                         | 0                        | 2,929               | 4,997            |
|                                   | <b>Total Residential/Industrial</b> | <b>770</b>           | <b>1,776</b>                    | <b>306</b>            | <b>238</b>            | <b>6,566</b>                | <b>0</b>                 | <b>3,422</b>        | <b>13,078</b>    |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>62,489</b>        | <b>422,633</b>                  | <b>8,535</b>          | <b>2,545</b>          | <b>39,134</b>               | <b>1,122,910</b>         | <b>39,180</b>       | <b>1,697,426</b> |

<sup>1</sup> The Great Salt Lake Basin includes the Great Salt Lake and the West Desert Pond.

**TABLE 6**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE GREAT SALT LAKE DESERT BASIN**  
**(1989 Data - Units in Acres)**

| Code                              | Cover                               | Beaver<br>County | Box Elder<br>County | Davis<br>County | Iron<br>County | Juab<br>County | Millard<br>County | Salt Lake<br>County | Tooele<br>County | Weber<br>County | Basin<br>Total   |
|-----------------------------------|-------------------------------------|------------------|---------------------|-----------------|----------------|----------------|-------------------|---------------------|------------------|-----------------|------------------|
| <b>Surface Irrigated Cropland</b> |                                     |                  |                     |                 |                |                |                   |                     |                  |                 |                  |
| IA1a                              | Fruit                               | 0                | 0                   | 0               | 0              | 0              | 17                | 0                   | 2                | 0               | 19               |
| IA1e                              | Other Horticulture                  | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 0                | 0               | 0                |
| IA2a                              | Grain                               | 0                | 8,194               | 0               | 0              | 0              | 513               | 0                   | 3,371            | 0               | 12,078           |
| IA2a1                             | Corn                                | 0                | 16                  | 0               | 0              | 36             | 13                | 0                   | 382              | 0               | 447              |
| IA2b                              | Vegetables                          | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 0                | 0               | 0                |
| IA2b1                             | Potatoes                            | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 4                | 0               | 4                |
| IA2b2                             | Onions                              | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 0                | 0               | 0                |
| IA2b3                             | Beans                               | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 0                | 0               | 0                |
| IA2c                              | Other Row Crops                     | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 0                | 0               | 0                |
| IA3a                              | Alfalfa                             | 0                | 17,103              | 0               | 0              | 553            | 2,578             | 0                   | 9,270            | 0               | 29,504           |
| IA3b                              | Grass Hay                           | 0                | 1,623               | 0               | 0              | 760            | 22                | 0                   | 1,515            | 0               | 3,920            |
| IA3c                              | Grass/Turf                          | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 75               | 0               | 75               |
| IA3d                              | Pasture                             | 0                | 3,902               | 0               | 0              | 632            | 2,324             | 0                   | 12,505           | 0               | 19,363           |
| IA4a                              | Fallow                              | 0                | 982                 | 0               | 0              | 0              | 36                | 0                   | 2,395            | 0               | 3,413            |
| IA4b                              | Idle Overgrown                      | 0                | 6,196               | 0               | 0              | 888            | 968               | 0                   | 3,155            | 0               | 11,207           |
| IIA1a                             | Pasture (surf. & sub.)              | 0                | 5,284               | 0               | 0              | 362            | 708               | 0                   | 1,233            | 0               | 7,587            |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0                | 408                 | 0               | 0              | 0              | 0                 | 0                   | 0                | 0               | 408              |
|                                   | <b>Subtotal</b>                     | <b>0</b>         | <b>43,708</b>       | <b>0</b>        | <b>0</b>       | <b>3,231</b>   | <b>7,179</b>      | <b>0</b>            | <b>33,907</b>    | <b>0</b>        | <b>88,025</b>    |
| <b>Sub-Irrigated Cropland</b>     |                                     |                  |                     |                 |                |                |                   |                     |                  |                 |                  |
| IIA2a                             | Sub. Irr. Pasture                   | 0                | 76                  | 0               | 0              | 317            | 0                 | 0                   | 72               | 0               | 465              |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 0                | 0               | 0                |
|                                   | <b>Subtotal</b>                     | <b>0</b>         | <b>76</b>           | <b>0</b>        | <b>0</b>       | <b>317</b>     | <b>0</b>          | <b>0</b>            | <b>72</b>        | <b>0</b>        | <b>465</b>       |
|                                   | <b>Total Irrigated Croplands</b>    | <b>0</b>         | <b>43,784</b>       | <b>0</b>        | <b>0</b>       | <b>3,548</b>   | <b>7,179</b>      | <b>0</b>            | <b>33,979</b>    | <b>0</b>        | <b>88,490</b>    |
| <b>Wet/Open Water Areas</b>       |                                     |                  |                     |                 |                |                |                   |                     |                  |                 |                  |
| IIB                               | Cattail/Bullrush Aspect             | 0                | 1,032               | 0               | 0              | 5,307          | 0                 | 0                   | 364              | 0               | 6,703            |
| IIB-E                             | Wet/Vegetation Asp.                 | 0                | 28,832              | 14,837          | 0              | 0              | 0                 | 83                  | 0                | 11,605          | 55,357           |
| IIC                               | Wet Flats                           | 0                | 7,877               | 15,026          | 0              | 590            | 0                 | 276                 | 10,617           | 10,011          | 44,397           |
| IIE                               | Riparian                            | 0                | 245                 | 0               | 0              | 182            | 87                | 0                   | 710              | 0               | 1,224            |
| IIF                               | Open Water                          | 0                | 1,824               | 0               | 0              | 1,745          | 272               | 0                   | 3,218            | 149             | 7,208            |
| IIF2                              | Reservoirs                          | 0                | 32                  | 2,471           | 0              | 0              | 0                 | 103                 | 0                | 2,381           | 4,987            |
| IIF4a                             | Temporary Flooded                   | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 107              | 1               | 108              |
| IIF4b                             | Sewage Lagoon                       | 0                | 8                   | 0               | 0              | 0              | 0                 | 0                   | 41               | 0               | 49               |
| IIF4c                             | Evaporation Pond                    | 0                | 0                   | 0               | 0              | 0              | 0                 | 0                   | 41,693           | 0               | 41,693           |
| IIF5                              | Salt Water <sup>1</sup>             | 0                | 814,548             | 214,824         | 0              | 0              | 0                 | 15,255              | 333,763          | 55,742          | 1,434,132        |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>0</b>         | <b>854,398</b>      | <b>247,158</b>  | <b>0</b>       | <b>7,824</b>   | <b>359</b>        | <b>15,717</b>       | <b>390,513</b>   | <b>79,889</b>   | <b>1,595,858</b> |
| <b>Residential/Industrial</b>     |                                     |                  |                     |                 |                |                |                   |                     |                  |                 |                  |
| VA                                | Farmsteads                          | 0                | 932                 | 0               | 0              | 111            | 243               | 0                   | 885              | 0               | 2,171            |
| VB                                | Residential                         | 0                | 288                 | 0               | 0              | 19             | 50                | 0                   | 5,220            | 0               | 5,577            |
| VB3                               | Open Spaces                         | 0                | 3                   | 0               | 0              | 0              | 0                 | 0                   | 330              | 0               | 333              |
| VC                                | Commercial/Industrial               | 0                | 2,969               | 0               | 0              | 0              | 13                | 0                   | 2,015            | 0               | 4,997            |
|                                   | <b>Total Residential/Industrial</b> | <b>0</b>         | <b>4,192</b>        | <b>0</b>        | <b>0</b>       | <b>130</b>     | <b>306</b>        | <b>0</b>            | <b>8,450</b>     | <b>0</b>        | <b>13,078</b>    |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>0</b>         | <b>902,374</b>      | <b>247,158</b>  | <b>0</b>       | <b>11,502</b>  | <b>7,844</b>      | <b>15,717</b>       | <b>432,942</b>   | <b>79,889</b>   | <b>1,697,426</b> |

<sup>1</sup> The Great Salt Lake Basin includes the Great Salt Lake and the West Desert Pond.

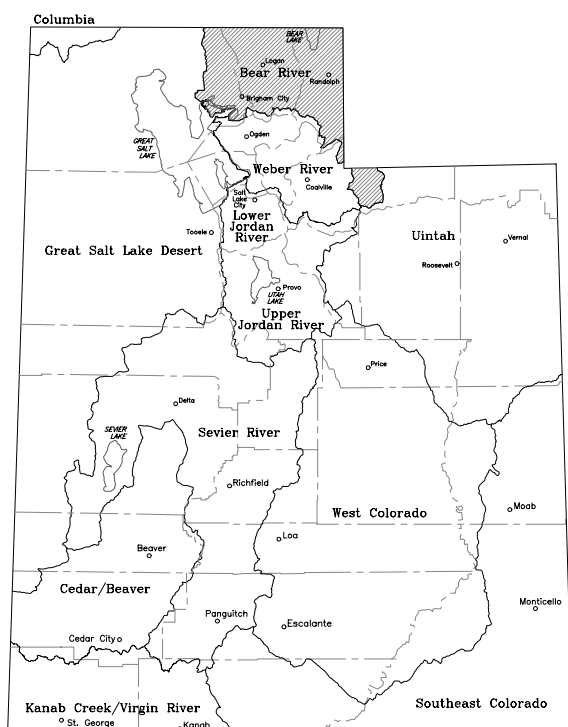
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1. *Controlled 35mm Aerial Photography Water-Related Land Use Inventory for the Bear River Drainage and Northern Utah - Final Report*, Wojcik Technical Services, August 1996.
2. *Great Salt Lake Desert Basin - Final Report for 35mm Photography, Mapping and Analytical Photographic Services Inc.*, September 1989.
3. *Hydrologic Inventory of the Great Salt Lake Desert Area*, Utah State University, Utah Division of Water Resources, November 1971.
4. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
5. *Landform Map of Utah*, Merril K. Ridd, 1961.
6. *Water-Related Land Use Inventories, Great Salt Lake Desert Study Unit*, Utah Division of Water Resources, November 1993.

## BEAR RIVER BASIN

### Basin Description

The Bear River Basin proper, covers large portions Idaho, Wyoming, and Utah. Utah claims approximately 2,163,000 acres of the Bear River Basin spanning parts of Box Elder, Cache, Summit and Rich counties. The Utah portion of the basin is bordered on the north by the Utah/Idaho state line and on the east by the Utah/Wyoming state line. The Promontory mountains largely form the western boundary, while the Box Elder, Cache, and Rich counties lines largely comprise the basin's southern boundary. The Utah portion of the basin is further divided into the Lower Bear, Cache Valley and Upper Bear hydrologic sub-basins. Figure 10 locates the Bear River Basin with respect to the state borders. Major cities within the basin are also included in this figure.



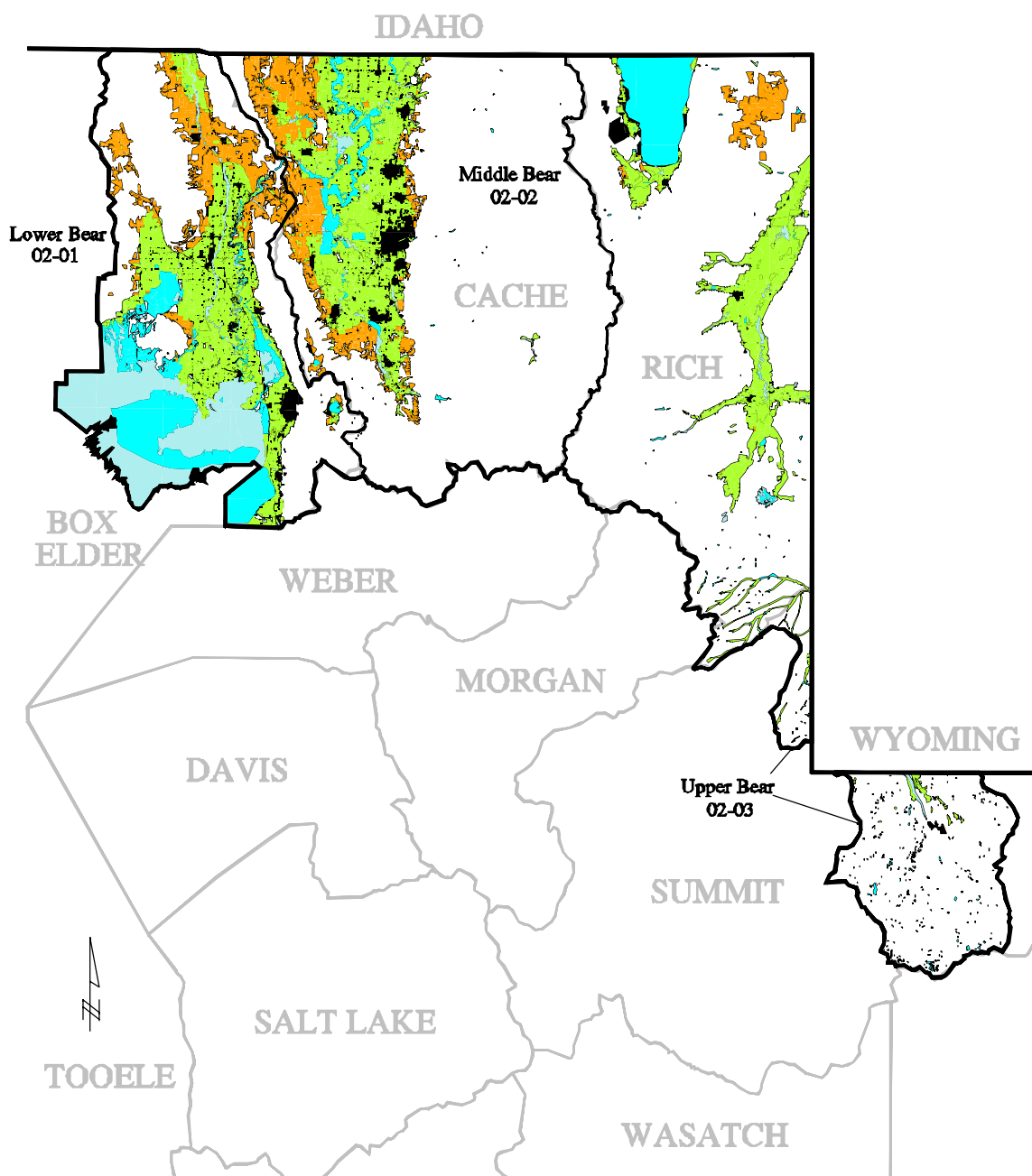
**Figure 10.** Location of the Bear River Basin.

The climate varies widely with the physiography of the basin. Precipitations range from roughly 9 inches per year at low elevations (4,200 feet) to more than 40 inches at high elevations (12,700 feet). Vast amounts of water are stored in reservoirs and glacial lakes at high elevations and feed the basin's river systems in the spring and summer months. In addition, the higher elevations experience short, mildly warm summers and long, cold winters. At lower elevations, temperatures and seasons are more moderate and less varied. Notable features of the basin include Bear Lake and Logan Canyon.

Census data indicate a 1990 population of 108,393 in the Utah portion of the Bear River Basin. Roughly 64.7 percent of that population resides in Cache County, 33.7 percent in Box Elder County, 1.6 percent in Rich County, and 0.0 percent in Summit County. The basin's largest cities include Logan (pop. 32,762) and Brigham City (pop. 15,644). Figure 11 illustrates the water-related land use of the basin and indicates that most of the agricultural land use occurs on the more populated areas on the western edge of the basin.

### Data Collection

In 1986, the Division of Water Resources inventoried water-related land use in the Bear River Basin. The basin had suffered from nearly three years of heavy precipitation. Therefore, many of the acres inventoried were temporarily flooded. A comparison of Bear River Basin conditions in 1986 versus conditions in 1996 would show that some categories of land use may be over represented. Acreage estimates of Great Salt Lake and Bear Lake may be over represented due to the series of high precipitation years in the early 80s. Furthermore, estimates of wet and marshy pastures throughout the basin may be overstated for the same period.



**Figure 11. Mapped Water-Related Land Use of the Bear River Basin.**

## Data Summary

The Division of Water Resources inventoried nearly 569,030 acres of land in the basin. Lands not inventoried contain mainly national forests and rangeland. Of the inventoried acres, 301,772 are irrigated cropland, 24,103 are grasses and hays which receive subirrigation, 230,905 are wet/open water areas and 36,350 are residential/industrial areas. Table 7 summarizes the division's 1969 and 1986 land use data. It also indicates that additional data were collected in 1996.

**Table 7**  
**Bear River Basin**  
(Acres)

| Land Use                     | 1969 <sup>1</sup> | 1989                 | 1996 <sup>2</sup> |
|------------------------------|-------------------|----------------------|-------------------|
| Irrigated Croplands          | 238,803           | 301,772              |                   |
| Wet/Open Water Areas         | 104,321           | 230,905 <sup>3</sup> |                   |
| Residential/Industrial Areas | ---               | 36,350               |                   |

<sup>1</sup> Completed by Utah State Univ. using a different method.

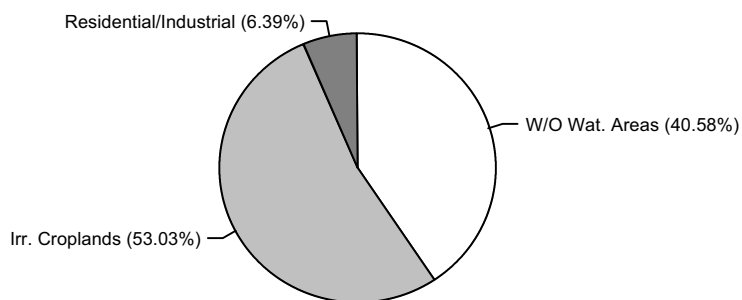
<sup>2</sup> Data were collected but not yet analyzed.

<sup>3</sup> Total includes Willard Bay (+/- 10,000 acres)

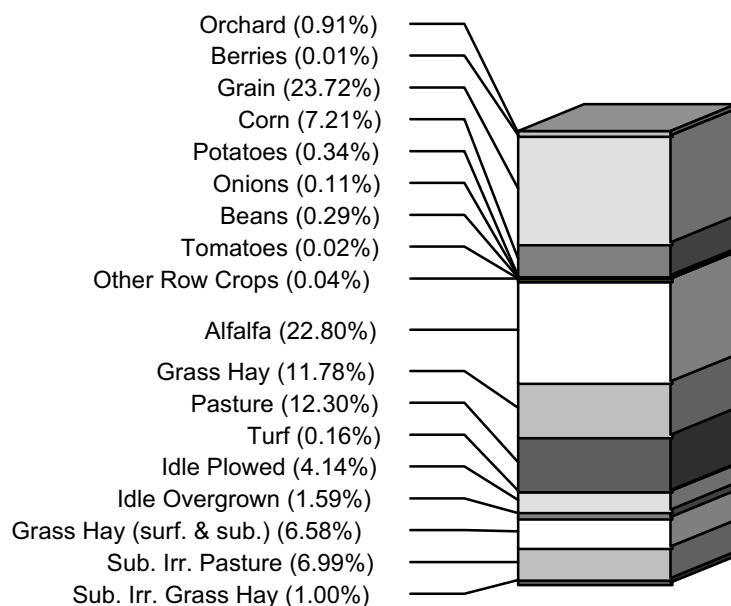
The division has further classified the water-related land use within the basin. Figure 12 delineates the three categories of water-related land use listed above by percentage.

Additionally, Figure 13 represents data from the category of surface irrigated cropland. The data are arranged into 18 different subcategories.

Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Tables 8 and 9. Table 8 contains the 1986 data set by study area while Table 9 contains the 1986 data set by county.



**Figure 12.** Delineation of Water-Related Land Use Categories within the Bear River Basin (1986 Data).



**Figure 13.** Breakdown of Surface Irrigated Cropland within the Bear River Basin (1986 Data).

**TABLE 8**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE BEAR RIVER BASIN**  
**(1986 Data - Units in Acres)**

| Code                              | Cover                               | Lower Bear<br>02-01 | Cache Valley<br>02-02 | Upper Bear<br>02-03 | Basin<br>Total |
|-----------------------------------|-------------------------------------|---------------------|-----------------------|---------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                     |                       |                     |                |
| IA1a                              | Orchard                             | 2,470               | 183                   | 97                  | 2,750          |
| IA1e                              | Berries                             | 0                   | 20                    | 21                  | 41             |
| IA2a                              | Grain                               | 35,227              | 34,347                | 2,017               | 71,591         |
| IA2a1                             | Corn                                | 12,858              | 8,911                 | 0                   | 21,769         |
| IA2b1                             | Potatoes                            | 1,013               | 3                     | 0                   | 1,016          |
| IA2b2                             | Onions                              | 331                 | 5                     | 0                   | 336            |
| IA2b3                             | Beans                               | 684                 | 205                   | 0                   | 889            |
| IA2b4                             | Tomatoes                            | 37                  | 9                     | 0                   | 46             |
| IA2c                              | Other Row Crops                     | 30                  | 91                    | 0                   | 121            |
| IA3a                              | Alfalfa                             | 20,062              | 39,591                | 9,150               | 68,803         |
| IA3b                              | Grass Hay                           | 1,662               | 2,991                 | 30,881              | 35,534         |
| IA3d                              | Pasture                             | 9,970               | 19,145                | 8,010               | 37,125         |
| IA3c                              | Grass/Turf                          | 461                 | 24                    | 0                   | 485            |
| IA4a                              | Idle Plowed                         | 7,894               | 4,401                 | 197                 | 12,492         |
| IA4b                              | Idle Overgrown                      | 1,764               | 2,923                 | 123                 | 4,810          |
| IIA1b                             | Hayland (surf. & sub.)              | 338                 | 6                     | 19,519              | 19,863         |
|                                   | <b>Subtotal</b>                     | <b>94,801</b>       | <b>112,855</b>        | <b>70,015</b>       | <b>277,671</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                     |                       |                     |                |
| IIA2b1                            | Sub. Irr. Pasture                   | 11,068              | 6,958                 | 3,056               | 21,082         |
| IIA2b2                            | Sub. Irr. Grass Hay                 | 0                   | 0                     | 3,021               | 3,021          |
|                                   | <b>Subtotal</b>                     | <b>11,068</b>       | <b>6,958</b>          | <b>6,077</b>        | <b>24,103</b>  |
|                                   | <b>Total Irrigated Croplands</b>    | <b>105,869</b>      | <b>119,813</b>        | <b>76,092</b>       | <b>301,774</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                     |                       |                     |                |
| IIC                               | Wet Flats                           | 4,096               | 29                    | 643                 | 4,768          |
| IIE                               | Riparian                            | 4,058               | 4,581                 | 3,261               | 11,900         |
| IIF                               | Open Water                          | 15,826              | 9,248                 | 37,829              | 62,903         |
| IIF4                              | Other Water                         | 127,968             | 0                     | 183                 | 128,151        |
| IIF4a                             | Temp. Flooded                       | 17,180              | 5,941                 | 0                   | 23,121         |
| IIF4b                             | Sewage Lagoon                       | 0                   | 61                    | 0                   | 61             |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>169,128</b>      | <b>19,860</b>         | <b>41,916</b>       | <b>230,904</b> |
| <b>Residential/Industrial</b>     |                                     |                     |                       |                     |                |
| VB                                | Residential                         | 8,900               | 16,530                | 5,740               | 31,170         |
| VB3                               | Public Open Space                   | 618                 | 836                   | 186                 | 1,640          |
| VC                                | Commercial                          | 1,757               | 1,648                 | 135                 | 3,540          |
|                                   | <b>Total Residential/Industrial</b> | <b>11,275</b>       | <b>19,014</b>         | <b>6,061</b>        | <b>36,350</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>286,272</b>      | <b>158,687</b>        | <b>124,069</b>      | <b>569,028</b> |

**TABLE 9**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE BEAR RIVER BASIN**  
**(1986 Data - Units in Acres)**

| Code                              | Cover                               | Box Elder<br>County | Cache<br>County | Rich<br>County | Summit<br>County | Basin<br>Total |
|-----------------------------------|-------------------------------------|---------------------|-----------------|----------------|------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                     |                 |                |                  |                |
| IA1a                              | Orchard                             | 2,470               | 183             | 97             | 0                | 2,750          |
| IA1e                              | Berries                             | 0                   | 20              | 21             | 0                | 41             |
| IA2a                              | Grain                               | 35,227              | 34,347          | 2,017          | 0                | 71,591         |
| IA2a1                             | Corn                                | 12,858              | 8,911           | 0              | 0                | 21,769         |
| IA2b1                             | Potatoes                            | 1,013               | 3               | 0              | 0                | 1,016          |
| IA2b2                             | Onions                              | 331                 | 5               | 0              | 0                | 336            |
| IA2b3                             | Beans                               | 684                 | 205             | 0              | 0                | 889            |
| IA2b4                             | Tomatoes                            | 37                  | 9               | 0              | 0                | 46             |
| IA2c                              | Other Row Crops                     | 30                  | 91              | 0              | 0                | 121            |
| IA3a                              | Alfalfa                             | 20,062              | 39,591          | 9,150          | 0                | 68,803         |
| IA3b                              | Grass Hay                           | 1,662               | 2,991           | 30,687         | 194              | 35,534         |
| IA3d                              | Pasture                             | 9,970               | 19,145          | 5,549          | 2,461            | 37,125         |
| IA3c                              | Grass/Turf                          | 461                 | 24              | 0              | 0                | 485            |
| IA4a                              | Idle Plowed                         | 7,894               | 4,401           | 197            | 0                | 12,492         |
| IA4b                              | Idle Overgrown                      | 1,764               | 2,923           | 123            | 0                | 4,810          |
| IA1b                              | Hayland (surf. & sub.)              | 338                 | 6               | 19,519         | 0                | 19,863         |
|                                   | <b>Subtotal</b>                     | <b>94,801</b>       | <b>112,855</b>  | <b>67,360</b>  | <b>2,655</b>     | <b>277,671</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                     |                 |                |                  |                |
| IIA2b1                            | Sub. Irr. Pasture                   | 11,068              | 6,958           | 3,056          | 0                | 21,082         |
| IIA2b2                            | Sub. Irr. Grass Hay                 | 0                   | 0               | 3,021          | 0                | 3,021          |
|                                   | <b>Subtotal</b>                     | <b>11,068</b>       | <b>6,958</b>    | <b>6,077</b>   | <b>0</b>         | <b>24,103</b>  |
|                                   | <b>Total Irrigated Croplands</b>    | <b>105,869</b>      | <b>119,813</b>  | <b>73,437</b>  | <b>2,655</b>     | <b>301,774</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                     |                 |                |                  |                |
| IIC                               | Wet Flats                           | 4,096               | 29              | 633            | 10               | 4,768          |
| IIE                               | Riparian                            | 4,058               | 4,581           | 2,666          | 595              | 11,900         |
| IIF                               | Open Water                          | 15,826              | 9,248           | 36,901         | 928              | 62,903         |
| IIF4                              | Other Water                         | 127,968             | 0               | 183            | 0                | 128,151        |
| IIF4a                             | Temp. Flooded                       | 17,180              | 5,941           | 0              | 0                | 23,121         |
| IIF4b                             | Sewage Lagoon                       | 0                   | 61              | 0              | 0                | 61             |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>169,128</b>      | <b>19,860</b>   | <b>40,383</b>  | <b>1,533</b>     | <b>230,904</b> |
| <b>Residential/Industrial</b>     |                                     |                     |                 |                |                  |                |
| VB                                | Residential                         | 8,900               | 16,530          | 5,185          | 555              | 31,170         |
| VB3                               | Public Open Space                   | 618                 | 836             | 186            | 0                | 1,640          |
| VC                                | Commercial                          | 1,757               | 1,648           | 135            | 0                | 3,540          |
|                                   | <b>Total Residential/Industrial</b> | <b>11,275</b>       | <b>19,014</b>   | <b>5,506</b>   | <b>555</b>       | <b>36,350</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>286,272</b>      | <b>158,687</b>  | <b>119,326</b> | <b>4,743</b>     | <b>569,028</b> |

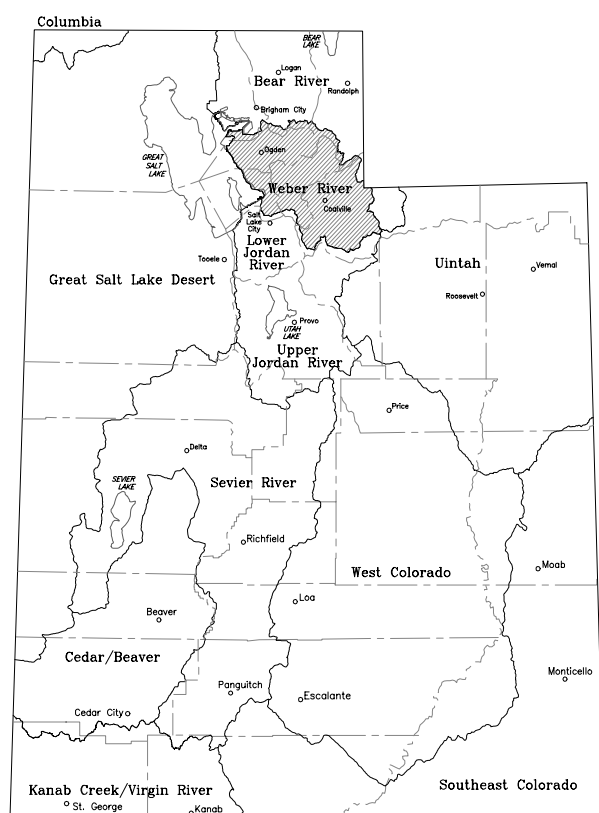
## References

1. *Bear River Basin - Final Report for 35mm Aerial Photography*, Intermountain Aerial Surveys Inc., August 1986.
2. *Controlled 35mm Aerial Photography Water-Related Land Use Inventory for the Bear River Drainage and Northern Utah - Final Report*, Wojcik Technical Services, August 1996.
3. *Landform Map of Utah*, Merril K. Ridd, 1961.
4. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
5. *Utah State Water Plan, Bear River Basin*, Utah Board of Water Resources, January 1992.
6. *Wasatch Front Total Water Management Study, Bear River Basin*, Utah Division of Water Resources, Bureau of Reclamation, and United States Department of the Interior, August 1987.
7. *Water Budget Studies, Bear River Study Area*, Utah Division of Water Resources, September 1994.
8. *Water-Related Land Use Inventories, Bear River Basin*, Utah Division of Water Resources, January 1991.

## WEBER RIVER BASIN

### Basin Description

The Weber River Basin is located in the north-central area of Utah. Great Salt Lake generally defines the basin's western boundary. Mountains from the Wasatch Range form the northern, eastern, and southern boundaries as well as form most of the acreage of the basin. Figure 14 locates the Weber River Basin with respect to the state of Utah borders.



**Figure 14.** Location of the Weber River Basin.

The western edge of the Wasatch Range is generally known as the Wasatch Front. A gently sloping delta, known as the East Shore, exists between the Wasatch Front and the Great Salt Lake. About 90 percent of the population of the Weber River Basin resides on this East Shore

area between North Ogden and Bountiful. Other population concentrations occur in Park City, Huntsville, Morgan and Kamas.

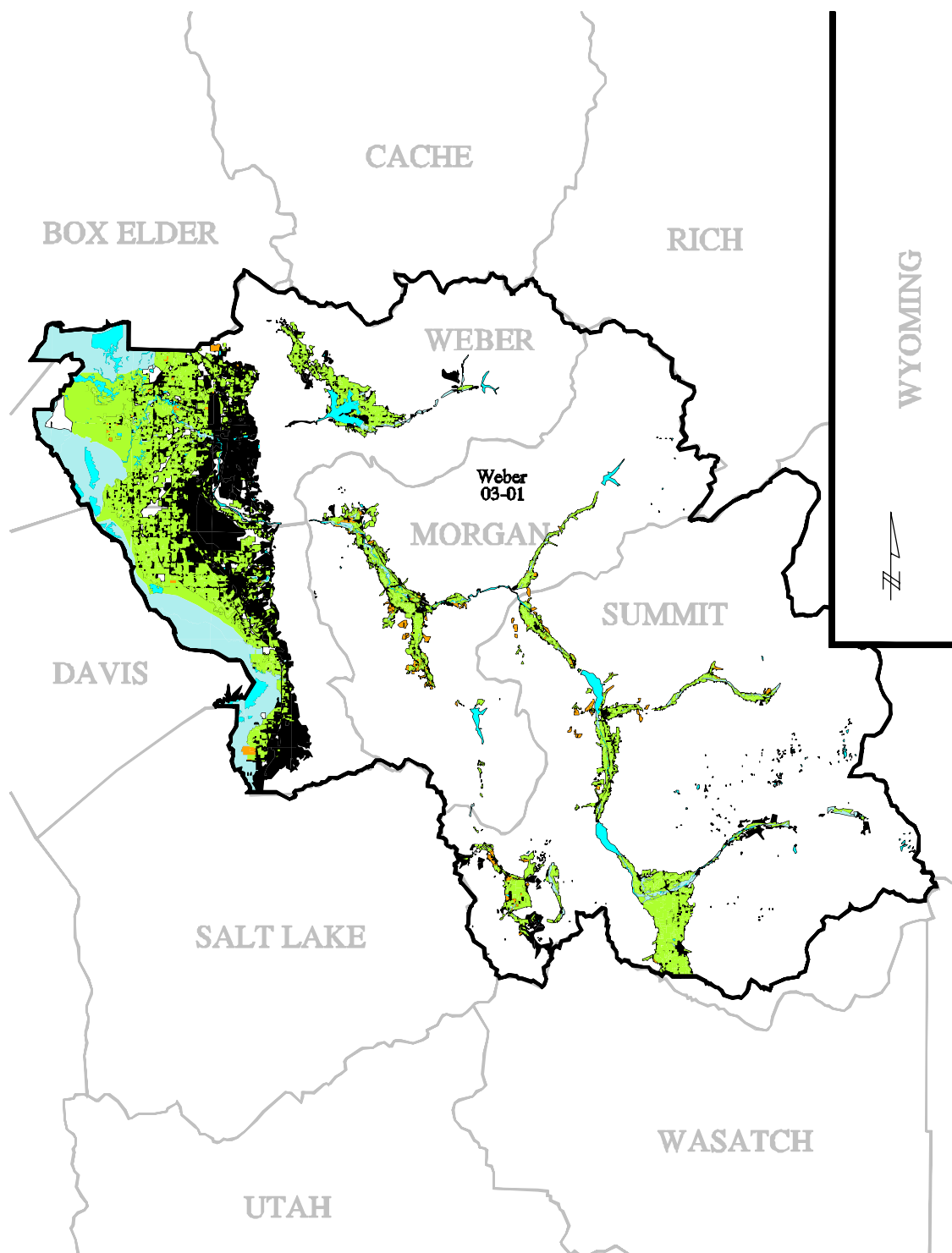
The climate of the basin is typical of high mountain areas. Elevations range from about 4200 feet on the shore of the Great Salt Lake to approximately 11,900 feet at the mountains of the eastern portion of the basin. The rugged terrain of the Wasatch Range invites long, rigorous winters and short, cool summers. Typically, the higher elevations of the basin see 50 inches of precipitation (mostly snow). Conversely, the lower elevations of the East Shore area receive about 12 inches of precipitation annually with much more tempered seasons. Additionally, temperature norms reach a January minimum of nearly 0 °F and a July maximum of more than 90 °F.

The basin's agriculture areas are found mainly along the tributaries to the Weber River, the Weber River and the East Shore area. Figure 15 illustrates the water-related land use of the basin and indicates the dominant land use on the East Shore area and along the major water courses of the basin.

### Data Collection

In the summer of 1987, the Division of Water Resources inventoried water-related land use in the Weber River Basin. That year was near the end of a series of wet years experienced across the state. However, the division feels that the estimates made within this inventory are relatively representative of normal conditions within the basin.

In 1987, the division defined the boundary of Great Salt Lake, and hence the basin, as the 4,205 foot contour level. Since that time, the division has redefined that boundary to be at the 4,200 foot contour level. Therefore, the category of wet/open flats may be over represented in this estimate.



**Figure 15. Mapped Water-Related Land Use of the Weber River Basin.**

## Data Summary

In the summer of 1987, the division inventoried more than 300,000 acres of land in the Weber River Basin. This represents only about 16 percent of the entire basin. Areas not inventoried are mainly rangeland and national forests. Of the inventoried acres, 142,129 were irrigated lands (including land that was fallow or idle), 79,232 were wet/open water areas (including reservoirs), and 81,045 were residential/industrial areas (including farmsteads and rural housing). Table 10 summarizes the division's collected data for the 1963-68 period and the 1987 inventory. It also indicates that additional data will be collected in 1997.

**Table 10**  
**Weber River Basin Land Use Summary**  
(Acres)

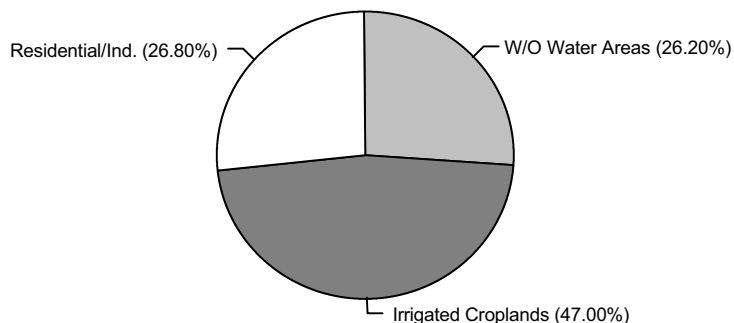
| Land Use                     | 1963-68 | 1987                | 1997 <sup>1</sup> |
|------------------------------|---------|---------------------|-------------------|
| Irrigated Croplands          | 160,110 | 142,129             |                   |
| Wet/Open Water Areas         | 74,570  | 79,232 <sup>2</sup> |                   |
| Residential/Industrial Areas | 37,630  | 81,045              |                   |

<sup>1</sup> Next planned inventory

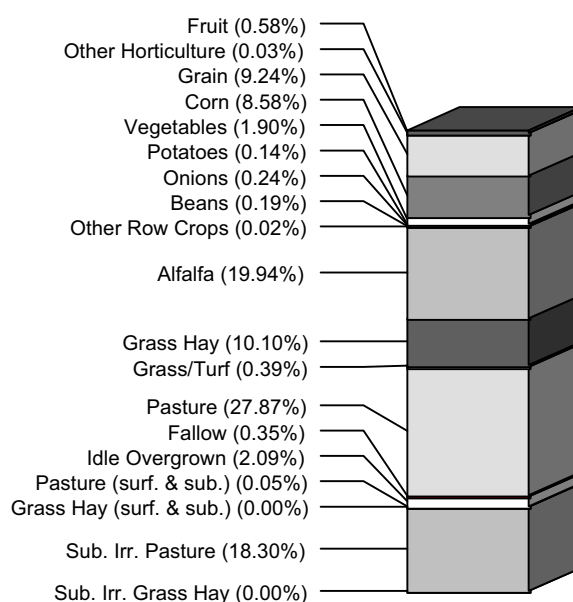
<sup>2</sup> The contour elevation definition of Great Salt Lake was changed from 4205 feet to 4200 feet above mean sea level since the 1987 inventory. The above estimate represents the new elevation definition. The previous estimate was 18,747 acres (Total does not include Willard Bay).

The division has further classified the water-related land use within the basin. Figure 16 delineates the three categories of water-related land use listed above by percentage.

Additionally, Figure 17 represents data from the category of surface irrigated cropland. The data are arranged into 19 different subcategories.



**Figure 16.** Delineation of Water-Related Land Use Categories within the Weber River Basin (1987 Data).



**Figure 17.** Breakdown of Surface Irrigated Cropland within the Weber River Basin (1987 Data).

Total Basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Table 11 by study area and Table 12 by county.

**TABLE 11**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE**  
**WEBER RIVER BASIN**  
**(1987 Data - Units in Acres)**

| Code                              | Cover                               | Weber Basin <sup>a</sup><br>03-01 |
|-----------------------------------|-------------------------------------|-----------------------------------|
| <b>Surface Irrigated Cropland</b> |                                     |                                   |
| IA1a                              | Fruit                               | 826                               |
| IA1e                              | Other Horticulture                  | 39                                |
| IA2a                              | Grain                               | 13,136                            |
| IA2a1                             | Corn                                | 12,192                            |
| IA2b                              | Vegetables                          | 2,707                             |
| IA2b1                             | Potatoes                            | 196                               |
| IA2b2                             | Onions                              | 344                               |
| IA2b3                             | Beans                               | 272                               |
| IA2c                              | Other Row Crops                     | 23                                |
| IA3a                              | Alfalfa                             | 28,330                            |
| IA3b                              | Grass Hay                           | 14,356                            |
| IA3c                              | Grass/Turf                          | 548                               |
| IA3d                              | Pasture                             | 39,614                            |
| IA4a                              | Fallow                              | 498                               |
| IA4b                              | Idle Overgrown                      | 2,975                             |
| IIA1a                             | Pasture (surf. & sub.)              | 69                                |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0                                 |
|                                   | <b>Subtotal</b>                     | <b>116,125</b>                    |
| <b>Sub-Irrigated Cropland</b>     |                                     |                                   |
| IIA2a                             | Sub. Irr. Pasture                   | 26,004                            |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                                 |
|                                   | <b>Subtotal</b>                     | <b>26,004</b>                     |
|                                   | <b>Total Irrigated Croplands</b>    | <b>142,129</b>                    |
| <b>Wet/Open Water Areas</b>       |                                     |                                   |
| IIB                               | Cattail/Bulrush Aspect              | 1                                 |
| IIB-E                             | Wet/Vegetation Asp.                 | 29,409                            |
| IIC                               | Wet Flats                           | 26,297                            |
| IIE                               | Riparian                            | 5,771                             |
| IIF                               | Open Water                          | 10,287                            |
| IIF2                              | Reservoirs (included in IIF)        | 6,949                             |
| IIF4a                             | Temporary Flooded                   | 98                                |
| IIF4b                             | Sewage Lagoon                       | 415                               |
| IIF4c                             | Evaporation Pond                    | 5                                 |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>79,232</b>                     |
| <b>Residential/Industrial</b>     |                                     |                                   |
| VA                                | Farmsteads                          | 1                                 |
| VB                                | Residential                         | 58,746                            |
| VB3                               | Open Spaces                         | 3,487                             |
| VC                                | Commercial/Industrial               | 18,811                            |
|                                   | <b>Total Residential/Industrial</b> | <b>81,045</b>                     |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>302,406</b>                    |

<sup>a</sup> The Weber River Basin has only one study area. The numbers given in the table are therefore, the totals for the basin.

**TABLE 12**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE WEBER RIVER BASIN**  
**(1987 Data - Units in Acres)**

| Code                              | Cover                               | Box Elder<br>County | Davis<br>County | Weber<br>County | Morgan<br>County | Salt Lake<br>County | Summit<br>County | Basin<br>Total |
|-----------------------------------|-------------------------------------|---------------------|-----------------|-----------------|------------------|---------------------|------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                     |                 |                 |                  |                     |                  |                |
| IA1a                              | Fruit                               | 0                   | 383             | 440             | 1                | 0                   | 2                | 826            |
| IA1e                              | Other Horticulture                  | 0                   | 39              | 0               | 0                | 0                   | 0                | 39             |
| IA2a                              | Grain                               | 0                   | 4,604           | 5,826           | 1,862            | 0                   | 844              | 13,136         |
| IA2a1                             | Corn                                | 0                   | 5,158           | 6,277           | 757              | 0                   | 0                | 12,192         |
| IA2b                              | Vegetables                          | 0                   | 2,314           | 387             | 6                | 0                   | 0                | 2,707          |
| IA2b1                             | Potatoes                            | 0                   | 173             | 23              | 0                | 0                   | 0                | 196            |
| IA2b2                             | Onions                              | 0                   | 259             | 85              | 0                | 0                   | 0                | 344            |
| IA2b3                             | Beans                               | 0                   | 0               | 272             | 0                | 0                   | 0                | 272            |
| IA2c                              | Other Row Crops                     | 0                   | 0               | 23              | 0                | 0                   | 0                | 23             |
| IA3a                              | Alfalfa                             | 0                   | 6,681           | 12,515          | 4,594            | 0                   | 4,540            | 28,330         |
| IA3b                              | Grass Hay                           | 0                   | 1,089           | 2,524           | 1,154            | 0                   | 9,589            | 14,356         |
| IA3c                              | Grass/Turf                          | 0                   | 184             | 32              | 34               | 0                   | 298              | 548            |
| IA3d                              | Pasture                             | 2                   | 8,770           | 15,653          | 2,285            | 0                   | 12,904           | 39,614         |
| IA4a                              | Fallow                              | 0                   | 118             | 144             | 166              | 0                   | 70               | 498            |
| IA4b                              | Idle Overgrown                      | 0                   | 1,512           | 1,088           | 206              | 0                   | 169              | 2,975          |
| IIA1a                             | Pasture (surf. & sub.)              | 0                   | 1               | 67              | 0                | 1                   | 0                | 69             |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0                   | 0               | 0               | 0                | 0                   | 0                | 0              |
|                                   | <b>Subtotal</b>                     | <b>2</b>            | <b>31,285</b>   | <b>45,356</b>   | <b>11,065</b>    | <b>1</b>            | <b>28,416</b>    | <b>116,125</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                     |                 |                 |                  |                     |                  |                |
| IIA2a                             | Sub. Irr. Pasture                   | 0                   | 6,542           | 17,798          | 707              | 0                   | 957              | 26,004         |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                   | 0               | 0               | 0                | 0                   | 0                | 0              |
|                                   | <b>Subtotal</b>                     | <b>0</b>            | <b>6,542</b>    | <b>17,798</b>   | <b>707</b>       | <b>0</b>            | <b>957</b>       | <b>26,004</b>  |
|                                   | <b>Total Irrigated Croplands</b>    | <b>2</b>            | <b>37,827</b>   | <b>63,154</b>   | <b>11,772</b>    | <b>1</b>            | <b>29,373</b>    | <b>142,129</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                     |                 |                 |                  |                     |                  |                |
| IIB                               | Cattail/Bulrush Aspect              | 0                   | 1               | 0               | 0                | 0                   | 0                | 1              |
| IIB-E                             | Wet/Vegetation Asp.                 | 0                   | 17,498          | 11,606          | 0                | 305                 | 0                | 29,409         |
| IIC                               | Wet Flats                           | 6,662               | 9,566           | 10,018          | 0                | 8                   | 43               | 26,297         |
| IIE                               | Riparian                            | 0                   | 150             | 1,400           | 1,325            | 0                   | 2,896            | 5,771          |
| IIF                               | Open Water                          | 0                   | 199             | 5,406           | 1,363            | 3                   | 3,316            | 10,287         |
| IIF2                              | Reservoirs                          | 2,133               | 2,421           | 2,381           | 0                | 14                  | 0                | 6,949          |
| IIF4a                             | Temporary Flooded                   | 0                   | 0               | 98              | 0                | 0                   | 0                | 98             |
| IIF4b                             | Sewage Lagoon                       | 0                   | 296             | 119             | 0                | 0                   | 0                | 415            |
| IIF4c                             | Evaporation Pond                    | 0                   | 2               | 0               | 0                | 3                   | 0                | 5              |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>8,795</b>        | <b>30,133</b>   | <b>31,028</b>   | <b>2,688</b>     | <b>333</b>          | <b>6,255</b>     | <b>79,232</b>  |
| <b>Residential/Industrial</b>     |                                     |                     |                 |                 |                  |                     |                  |                |
| VA                                | Farmsteads                          | 0                   | 0               | 0               | 0                | 0                   | 1                | 1              |
| VB                                | Residential                         | 0                   | 24,482          | 26,049          | 1,962            | 0                   | 6,253            | 58,746         |
| VB3                               | Open Spaces                         | 0                   | 846             | 2,200           | 128              | 0                   | 313              | 3,487          |
| VC                                | Commercial/Industrial               | 0                   | 10,790          | 7,086           | 346              | 1                   | 588              | 18,811         |
|                                   | <b>Total Residential/Industrial</b> | <b>0</b>            | <b>36,118</b>   | <b>35,335</b>   | <b>2,436</b>     | <b>1</b>            | <b>7,155</b>     | <b>81,045</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>8,797</b>        | <b>104,078</b>  | <b>129,517</b>  | <b>16,896</b>    | <b>335</b>          | <b>42,783</b>    | <b>302,406</b> |

## References

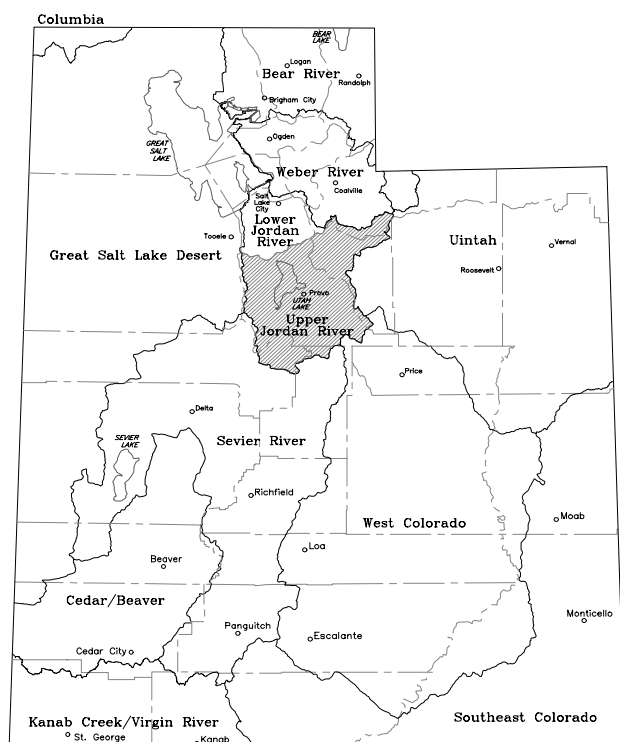
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7. *Weber River Basin - Final Report for 35mm Photography*, Intermountain Aerial Surveys Inc., August 1987.

## UPPER JORDAN RIVER STUDY AREA

### Study Area Description

The Jordan River Basin covers an area of about 3,800 square miles in north-central Utah and includes Salt Lake and Utah counties as well as parts of Juab, Sanpete, Wasatch and Summit counties. The basin divides into the Upper and Lower Jordan Study Areas. The Traverse Mountains divide the two study areas.

The Upper Jordan River Study Area covers about 3,040 square miles and comprises all of Utah county as well as parts of Juab, Sanpete, Wasatch and Summit counties. The Traverse Mountains to the north, Wasatch Front to the east, Mt. Nebo Wilderness to the south, and Oquirrh Mountains to the west generally define the boundary of the drainage. Figure 18 locates the Upper Jordan River Study Area with respect to the state of Utah borders.



**Figure 18.** Location of the Upper Jordan River Study Area.

Elevations within the Upper Jordan River Study Area range from 4,475 feet at the Jordan Narrows to 11,928 feet above mean sea level at Mt. Nebo in the south end of the drainage. Mt. Timpanogos on the Wasatch Front peaks at 11,749 feet while the Oquirrh Mountains on the west of the study area rise to more than 10,600 feet. The Traverse Mountains, the division between the Upper and Lower Jordan River Study Areas, peak at about 6,700 feet.

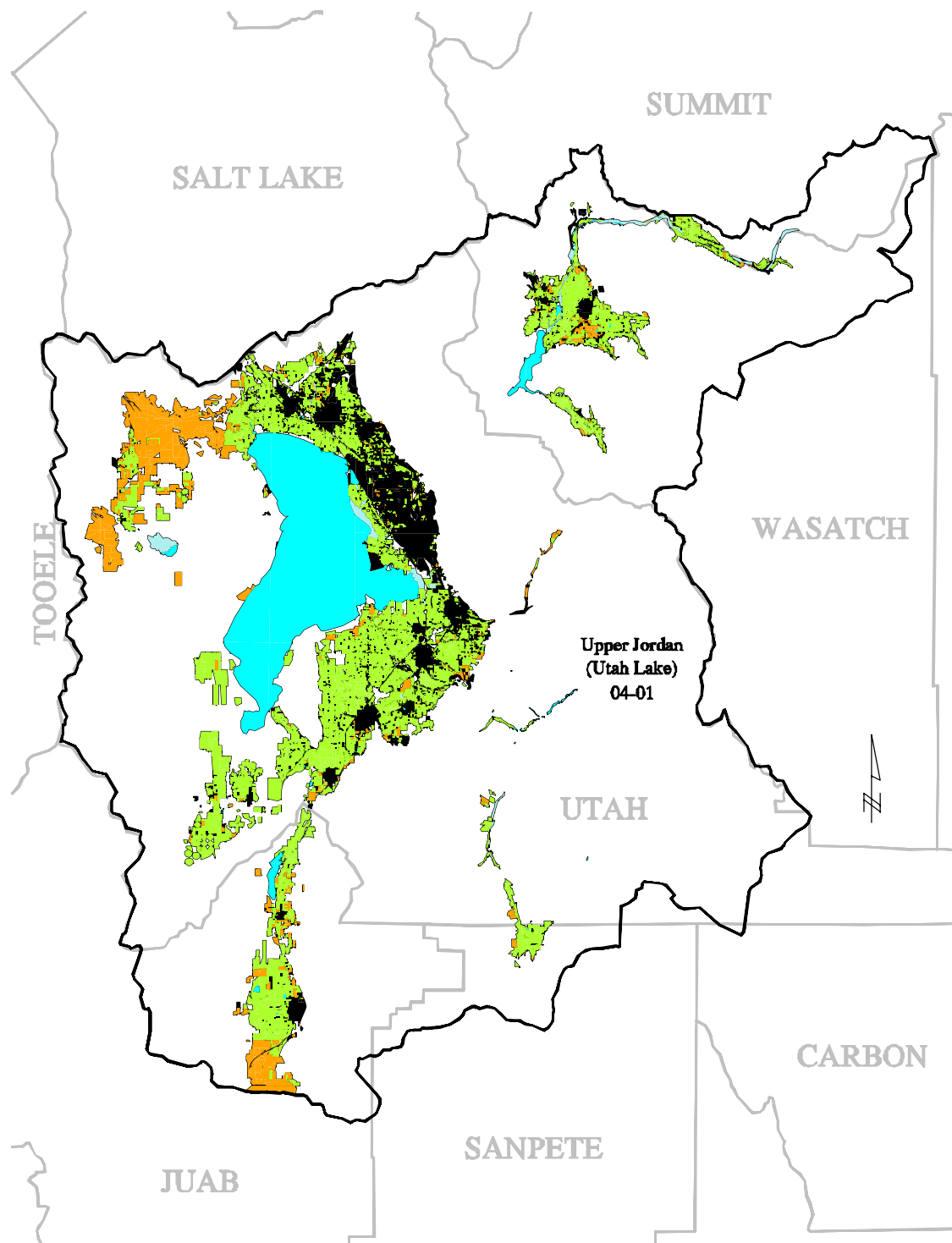
Due to the wide range in elevation, a wide range of climates also exists within the study area. The climate of the study area has reached -30 ° F in the winter and more than 100 ° F in the summer. Precipitation in the study area ranges from 12 to 16 inches on the valley floors to more than 50 inches in the higher elevations of the Wasatch Range. Most of the study area's precipitation falls on the Wasatch Range in the form of snow in the winter months and flows to the valley during the spring runoff.

In 1990, the state of Utah population estimate reached 1,722,850. In that same year, about 58 percent of the state lived in the Jordan River Basin. More than 278,300 residents lived in the Upper Jordan Study Area. The majority of that population resides at the base of the Wasatch Front between Alpine and Spanish Fork. Recently, agricultural lands have been displaced by the rapid population expansion and development in the study area.

Figure 19 illustrates the water-related land use of the Upper Jordan River Study Area. This figure also indicates that most of the land use of the study area occurs along the area adjacent to the Wasatch Front.

### Data Collection

In the summer of 1988 the Division of Water Resources inventoried water-related lands in the Upper Jordan River Study Area.



**Figure 19. Mapped Water-Related Land Use of the Upper Jordan River Study Unit.**

Collection conditions during that year were somewhat dry. However, due to storage the study area had a normal agricultural season.

## Data Summary

The division inventoried approximately 440,356 acres of land in the Upper Jordan River Study Area. This represents only about 23 percent of the entire study area. Areas not inventoried were mainly rangeland and national forests. Of the inventoried acres, 174,346 were irrigated lands (including land that was fallow, idle, or sub-irrigated), 114,205 were wet/open water areas (including reservoirs), and 65,245 were residential/industrial areas (including farmsteads and rural housing). The division has further broken down the water-related land use within the Upper Jordan River Study Area. Table 13 summarizes the division's historical land use data.

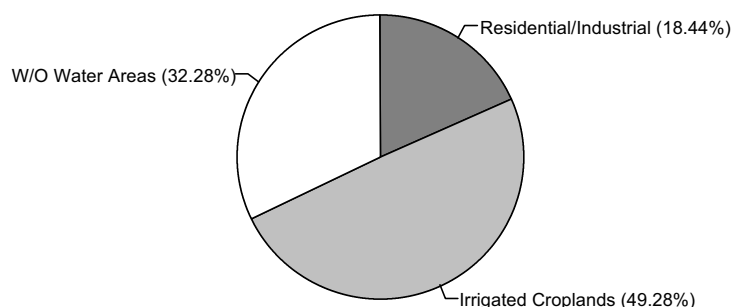
**Table 13**  
**Upper Jordan River Study Area**  
**Land Use Summary**  
(Acres)

| Land Use                     | 1966    | 1988                 | 1995                 |
|------------------------------|---------|----------------------|----------------------|
| Irrigated Croplands          | 172,729 | 166,394              | 174,346              |
| Wet/Open Water Areas         | 36,797  | 101,496 <sup>1</sup> | 114,205 <sup>1</sup> |
| Residential/Industrial Areas | 35,346  | 36,391               | 65,245               |

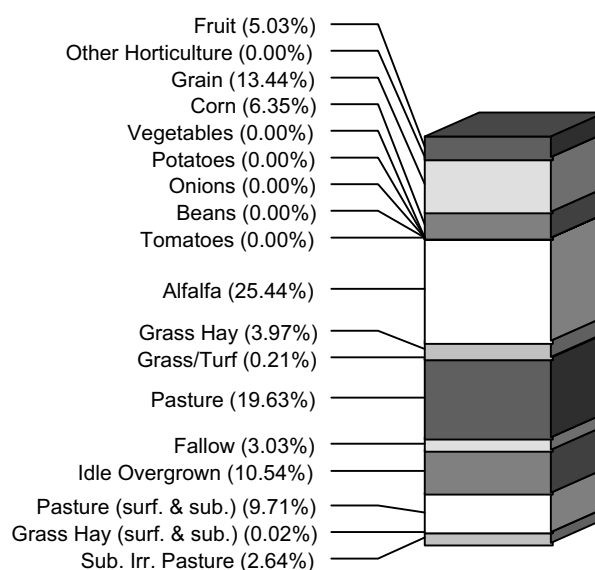
<sup>1</sup> Data include Utah Lake.

The division has further classified the water-related land use within the study area. Figure 20 delineates the above-listed categories of water-related land use by percentage.

Additionally, Figure 21 represents data from the category of surface irrigated cropland. The data are arranged into 19 subcategories.



**Figure 20.** Delineation of Water-Related Land Use Categories within the Upper Jordan River Study Area (1995 Data).



**Figure 21.** Breakdown of Surface Irrigated Cropland within the Upper Jordan River Study Area (1995 Data).

Total study area acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Table 14 by study area and Table 15 by county.

**TABLE 14**  
**SUMMARY OF LAND COVER FOR THE UPPER JORDAN RIVER STUDY AREA**  
**(1995 Data - Units in Acres)**

| Code                              | Cover                               | Upper Jordan <sup>a</sup><br>04-01 |
|-----------------------------------|-------------------------------------|------------------------------------|
| <b>Surface Irrigated Cropland</b> |                                     |                                    |
| IA1a                              | Fruit                               | 9,586                              |
| IA1f                              | Other Horticulture                  | 2                                  |
| IA2a                              | Grain                               | 22,925                             |
| IA2a1                             | Corn                                | 12,073                             |
| IA2b                              | Vegetables                          | 3                                  |
| 1A2b1                             | Potatoes                            | 0                                  |
| IA2b2                             | Onions                              | 9                                  |
| 1A2b3                             | Beans                               | 0                                  |
| IA2b4                             | Tomatoes                            | 5                                  |
| IA3a                              | Alfalfa                             | 46,634                             |
| IA3b                              | Grass Hay                           | 7,448                              |
| IA3c                              | Grass/Turf                          | 402                                |
| IA3d                              | Pasture                             | 34,825                             |
| IA4a                              | Fallow                              | 4,414                              |
| IA4b                              | Idle Overgrown                      | 14,326                             |
| IIA1a                             | Pasture (surf. & sub.)              | 16,850                             |
| IIA1b                             | Grass Hay (surf. & sub.)            | 45                                 |
|                                   | <b>Subtotal</b>                     | <b>169,547</b>                     |
| <b>Sub-Irrigated Cropland</b>     |                                     |                                    |
| IIA2a                             | Sub. Irr. Pasture                   | 4,799                              |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                                  |
|                                   | <b>Subtotal</b>                     | <b>4,799</b>                       |
|                                   | <b>Total Irrigated Croplands</b>    | <b>174,346</b>                     |
| <b>Wet/Open Water Areas</b>       |                                     |                                    |
| IIB                               | Cattail/Bullrush Aspect             | 64                                 |
| IIB-E                             | Wet/Vegetation Asp.                 | 41                                 |
| IIC                               | Wet Flats                           | 3,840                              |
| IIE                               | Riparian                            | 9,402                              |
| IIF                               | Open Water                          | 90,606                             |
| IIF2                              | Reservoirs                          | 7,034                              |
| IIF4a                             | Temporary Flooded                   | 2,483                              |
| IIF4b                             | Sewage Lagoon                       | 374                                |
| IIF4c                             | Evaporation Pond                    | 361                                |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>114,205</b>                     |
| <b>Residential/Industrial</b>     |                                     |                                    |
| VA                                | Farmsteads                          | 8,373                              |
| VB                                | Residential                         | 38,705                             |
| VB3                               | Open Spaces                         | 6,544                              |
| VC                                | Commercial/Industrial               | 11,623                             |
|                                   | <b>Total Residential/Industrial</b> | <b>65,245</b>                      |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>353,796</b>                     |

<sup>a</sup> The Upper Jordan River Study Area is the upper half of the Jordan River Basin. Therefore, the numbers given are only the totals for the upper half of the basin.

**TABLE 15**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE UPPER JORDAN RIVER STUDY AREA**  
**(1995 Data - Units in Acres)**

| Code                                     | Cover                                      | Juab<br>County | Sanpete<br>County | Summit<br>County | Utah<br>County | Wasatch<br>County | Basin<br>Total |
|--|--|----------------|-------------------|------------------|----------------|-------------------|----------------|
| <b><i>Surface Irrigated Cropland</i></b> |  |                |                   |                  |                |                   |                |
| IA1a                                     | Fruit                                      | 0              | 0                 | 0                | 9,582          | 4                 | 9,586          |
| IA1f                                     | Nurseries                                  | 0              | 0                 | 0                | 2              | 0                 | 2              |
| IA2a                                     | Grain                                      | 3,755          | 51                | 82               | 17,688         | 1,349             | 22,925         |
| IA2a1                                    | Corn                                       | 603            | 0                 | 0                | 11,470         | 0                 | 12,073         |
| IA2b                                     | Vegetables                                 | 0              | 0                 | 0                | 3              | 0                 | 3              |
| IA2b1                                    | Potatoes                                   | 0              | 0                 | 0                | 0              | 0                 | 0              |
| IA2b2                                    | Onions                                     | 0              | 0                 | 0                | 9              | 0                 | 9              |
| IA2b3                                    | Beans                                      | 0              | 0                 | 0                | 0              | 0                 | 0              |
| IA2b4                                    | Tomatoes                                   | 0              | 0                 | 0                | 5              | 0                 | 5              |
| IA3a                                     | Alfalfa                                    | 9,231          | 1,206             | 250              | 30,059         | 5,888             | 46,634         |
| IA3b                                     | Grass Hay                                  | 73             | 422               | 122              | 4,876          | 1,955             | 7,448          |
| IA3c                                     | Grass/Turf                                 | 0              | 0                 | 0                | 402            | 0                 | 402            |
| IA3d                                     | Pasture                                    | 1,784          | 600               | 1,237            | 24,586         | 6,618             | 34,825         |
| IA4a                                     | Fallow                                     | 245            | 0                 | 17               | 4,050          | 102               | 4,414          |
| IA4b                                     | Idle Overgrown                             | 2,959          | 46                | 5                | 10,482         | 834               | 14,326         |
| IIA1a                                    | Pasture (surf. & sub.)                     | 2,043          | 0                 | 300              | 11,606         | 2,901             | 16,850         |
| IIA1b                                    | Hayland (surf. & sub.)                     | 0              | 0                 | 0                | 0              | 45                | 45             |
|  | <b><i>Subtotal</i></b>                     | <b>20,693</b>  | <b>2,325</b>      | <b>2,013</b>     | <b>124,820</b> | <b>19,696</b>     | <b>169,547</b> |
| <b><i>Sub-Irrigated Cropland</i></b>     |  |                |                   |                  |                |                   |                |
| IIA2a                                    | Sub. Irr. Pasture                          | 308            | 34                | 413              | 3,236          | 808               | 4,799          |
| IIA2b                                    | Sub. Irr. Grass Hay                        | 0              | 0                 | 0                | 0              | 0                 | 0              |
|  | <b><i>Subtotal</i></b>                     | <b>308</b>     | <b>34</b>         | <b>413</b>       | <b>3,236</b>   | <b>808</b>        | <b>4,799</b>   |
|  | <b><i>Total Irrigated Croplands</i></b>    | <b>21,001</b>  | <b>2,359</b>      | <b>2,426</b>     | <b>128,056</b> | <b>20,504</b>     | <b>174,346</b> |
| <b><i>Wet/Open Water Areas</i></b>       |  |                |                   |                  |                |                   |                |
| IIB                                      | Cattail/Bullrush Aspect                    | 33             | 0                 | 0                | 31             | 0                 | 64             |
| IIB-E                                    | Wet/Vegetation Asp.                        | 33             | 0                 | 0                | 8              | 0                 | 41             |
| IIC                                      | Wet Flats                                  | 0              | 0                 | 0                | 3,840          | 0                 | 3,840          |
| IIE                                      | Riparian                                   | 840            | 16                | 673              | 6,665          | 1,208             | 9,402          |
| IIF                                      | Open Water                                 | 9              | 1                 | 6                | 90,433         | 157               | 90,606         |
| IIF2                                     | Reservoirs                                 | 1,558          | 15                | 1                | 385            | 5,075             | 7,034          |
| IIF4a                                    | Temporary Flooded                          | 0              | 0                 | 0                | 2,479          | 4                 | 2,483          |
| IIF4b                                    | Sewage Lagoon                              | 27             | 0                 | 0                | 242            | 105               | 374            |
| IIF4c                                    | Evaporation Pond                           | 0              | 0                 | 0                | 361            | 0                 | 361            |
|  | <b><i>Total Wet/Open Water Areas</i></b>   | <b>2,500</b>   | <b>32</b>         | <b>680</b>       | <b>104,444</b> | <b>6,549</b>      | <b>114,205</b> |
| <b><i>Residential/Industrial</i></b>     |  |                |                   |                  |                |                   |                |
| VA                                       | Farmsteads                                 | 270            | 314               | 169              | 4,435          | 3,185             | 8,373          |
| VB                                       | Residential                                | 1,508          | 12                | 381              | 33,139         | 3,665             | 38,705         |
| VB3                                      | Open Spaces                                | 55             | 0                 | 67               | 5,564          | 858               | 6,544          |
| VC                                       | Commercial/Industrial                      | 124            | 5                 | 2                | 11,135         | 357               | 11,623         |
|  | <b><i>Total Residential/Industrial</i></b> | <b>1,957</b>   | <b>331</b>        | <b>619</b>       | <b>54,273</b>  | <b>8,065</b>      | <b>65,245</b>  |
|  | <b><i>Total Land Use/Land Cover</i></b>    | <b>25,458</b>  | <b>2,722</b>      | <b>3,725</b>     | <b>286,773</b> | <b>35,118</b>     | <b>353,796</b> |

## References

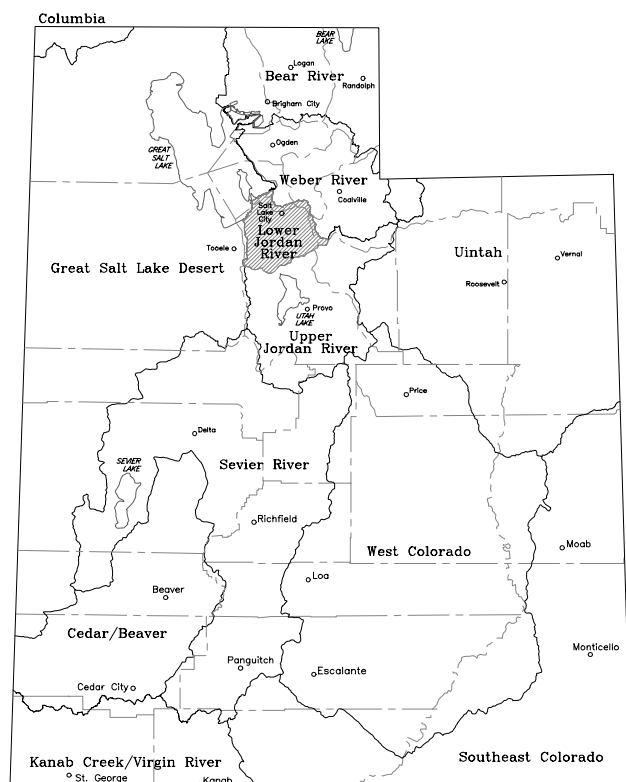
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## LOWER JORDAN RIVER STUDY AREA

### Study Area Description

The Jordan River Basin covers an area of about 3,800 square miles in north-central Utah and includes Salt Lake and Utah counties as well as parts of Juab, Sanpete, Wasatch and Summit counties. The basin divides into the Upper Jordan and Lower Jordan Study Areas. The Traverse Mountains divide the study areas.

The Lower Jordan River Study Area covers about 780 square miles and comprises nearly the entirety of Salt Lake county. The Wasatch Range to the east, Traverse Mountains to the south, Oquirrh Mountains to the west, and Great Salt Lake to the north generally define the boundary of the drainage. Figure 22 locates the Lower Jordan River Study Area with respect to the state of Utah borders.



**Figure 22.** Location of the Lower Jordan River Study Area.

Elevations within the Lower Jordan River Study Area range from 4,200 feet at the shores of Great Salt Lake to nearly 11,500 feet at points along the Wasatch Range. The Oquirrh Mountains on the west of the study area rise to more than 9,500 feet while the Traverse Mountains, the division between the two study areas, peak at about 6,700 feet.

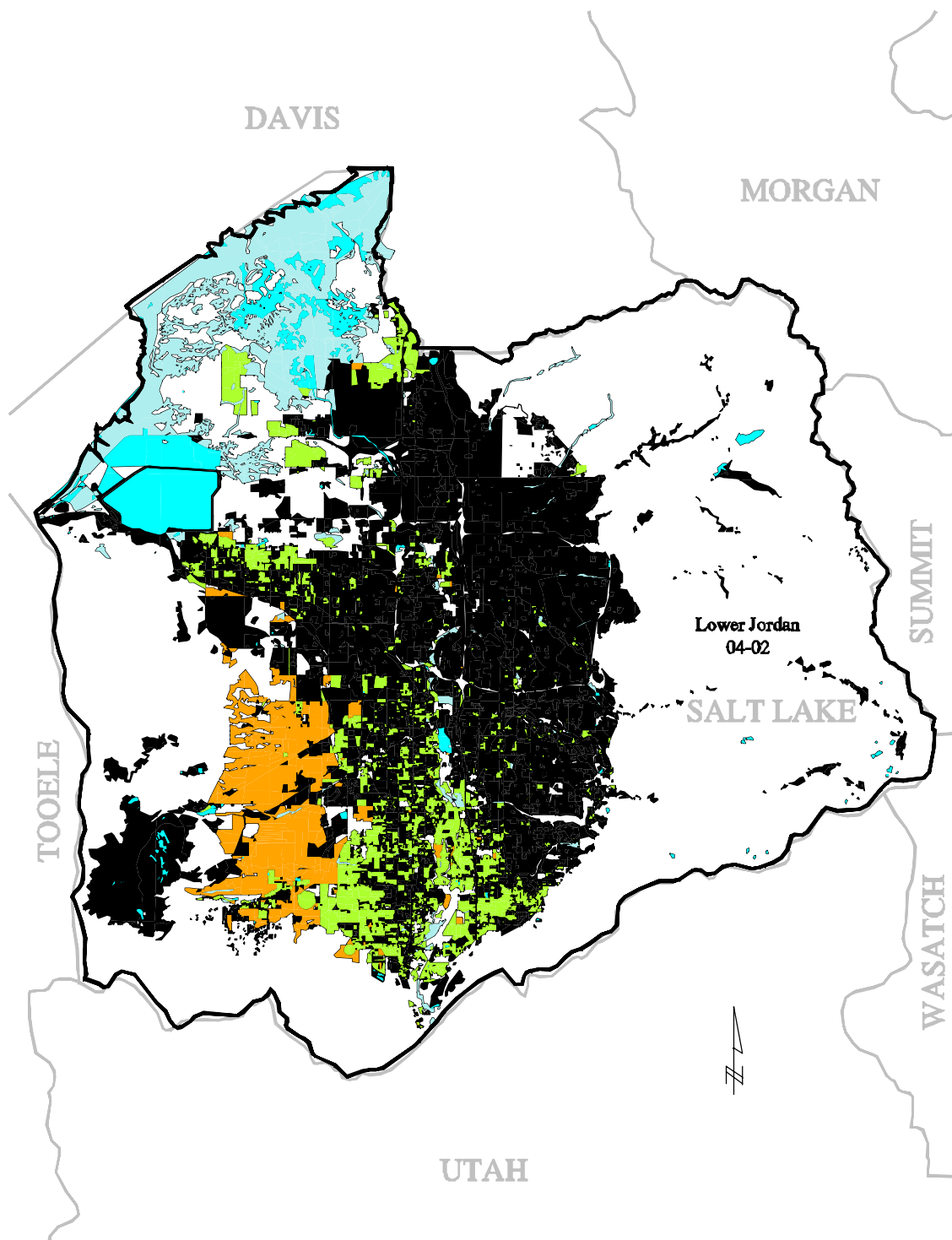
Due to the wide range in elevation, a wide range of climates also exists within the study area. The climate of the study area has reached -30 °F in the winter and more than 100 °F in the summer. Precipitation in the study area ranges from 12 to 16 inches on the valley floors to 60 inches in the higher elevations of the Wasatch Range. Most of the study area's precipitation falls on the Wasatch Range in the form of snow in the winter months.

Recently, agricultural lands have dwindled before the rapid population expansion and development of the study area. In 1990, the state of Utah population estimate reached 1,722,850. In that same year, about 58 percent of the state lived in the Jordan River Basin. The Lower Jordan River Study Area claimed at least 725,956 of those residents. The majority of that population resided at the base of the Wasatch Front between Salt Lake City and Draper.

Figure 23 illustrates the water-related land use of the Lower Jordan River Study Area. This figure indicates that urban and agricultural land use is widespread throughout the study area.

### Data Collection

In the summers of 1988 and 1994 the division inventoried water-related lands in the Lower Jordan River Study Area. Collection conditions during those years were somewhat dry. However, due to reservoir storage the study area experienced normal agricultural seasons.



**Figure 23. Mapped Water-Related Land Use of the Lower Jordan River Study Unit.**

In 1987, the division defined the boundary of Great Salt Lake, and hence the study area, as the 4,205 foot contour level. Since that time, the division has redefined that boundary to be at the 4,200 foot contour level. Since Great Salt Lake was more than 4,200 feet (the new defined average for the Lake) in 1988, the category of wet/open flats may be over represented by current standards.

## Data Summary

In the summer of 1994, the division inventoried more than 227,226 acres of land in the Lower Jordan River Study Area. This represents about 46 percent of the entire Lower Jordan River Study Area. Areas not inventoried were, mainly rangeland or national forests. Of the inventoried acres, 25,314 were irrigated lands (including land that was fallow, idle, or sub-irrigated), 44,235 were wet/open water areas (including the Great Salt Lake), and 120,686 were residential or industrial areas (including farmsteads and rural housing). Table 16 lists the study area's land use history.

**Table 16**  
**Lower Jordan River Study Area**  
**Land Use Summary**  
(Acres)

| Land Use        | 1960 <sup>1</sup> | 1979 <sup>2</sup> | 1988 <sup>3</sup> | 1994 <sup>4</sup> | 2020 <sup>5</sup> |
|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Irrigated Lands | ---               | 512,000           | 29,800            | 25,300            | 10,000            |
| Dry Farm Lands  | ---               | 27,400            | 23,100            | 18,600            | 5,000             |
| Total Ag Lands  | 93,000            | 78,600            | 52,900            | 43,800            | 15,000            |
| Urban Lands     | 57,000            | 94,500            | 116,100           | 127,300           | 175,000           |

<sup>1</sup> "Salt Lake Valley 1985" - Salt Lake County's Master Plan, March 1965.

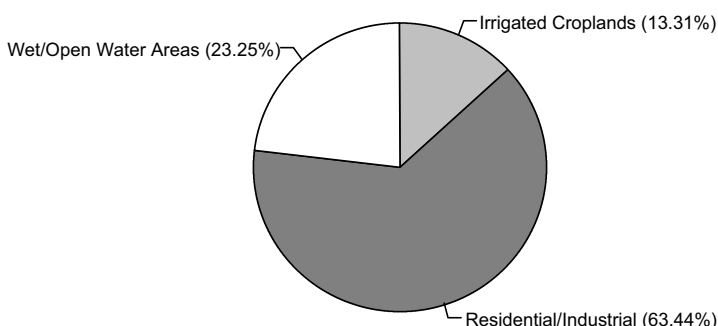
<sup>2</sup> "Land Use Inventory - Salt Lake County 1982"; Price, Willie, & Ridd.

<sup>3</sup> "Water-Related Land Use Inventories-Lower Jordan River Basin"; Utah Division of Water Resources.

<sup>4</sup> Unpublished "Water Related Land Use Inventories-Lower Jordan River Basin"; Utah Division of Water Resources.

<sup>5</sup> Projected from current trends.

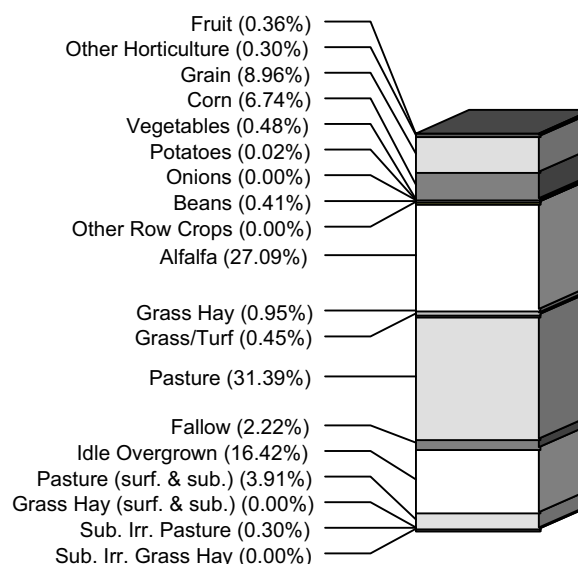
The division has further classified the water-related land use within the study area. Figure 24 delineates the previously listed categories of water-related land use.



**Figure 24.** Delineation of Water-Related Land Use Categories within the Lower Jordan River Study Area (1994 Data).

Additionally, Figure 25 represents data from the category of surface irrigated cropland. The data are arranged into 19 subcategories.

Total acreage for irrigated lands, wet/open water areas, and residential/industrial are given in Table 17.



**Figure 25.** Breakdown of Surface Irrigated Cropland within the Lower Jordan River Study Area (1994 Data).

**TABLE 17**  
**SUMMARY OF LAND COVER FOR THE LOWER JORDAN RIVER STUDY AREA**  
**(1994 Data - Units in Acres)**

| Code                              | Cover                               | Lower Jordan <sup>a</sup><br>04-02 |
|-----------------------------------|-------------------------------------|------------------------------------|
| <b>Surface Irrigated Cropland</b> |                                     |                                    |
| IA1a                              | Fruit                               | 90                                 |
| IA1e                              | Other Horticulture                  | 77                                 |
| IA2a                              | Grain                               | 2,267                              |
| IA2a1                             | Corn                                | 1,705                              |
| IA2b                              | Vegetables                          | 122                                |
| IA2b1                             | Potatoes                            | 5                                  |
| IA2b2                             | Onions                              | 0                                  |
| IA2b3                             | Beans                               | 103                                |
| IA2c                              | Other Row Crops                     | 0                                  |
| IA3a                              | Alfalfa                             | 6,858                              |
| IA3b                              | Grass Hay                           | 240                                |
| IA3c                              | Grass/Turf                          | 115                                |
| IA3d                              | Pasture                             | 7,947                              |
| IA4a                              | Fallow                              | 561                                |
| IA4b                              | Idle Overgrown                      | 4,156                              |
| IIA1a                             | Pasture (surf. & sub.)              | 991                                |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0                                  |
|                                   | <b>Subtotal</b>                     | <b>25,237</b>                      |
| <b>Sub-Irrigated Cropland</b>     |                                     |                                    |
| IIA2a                             | Sub. Irr. Pasture                   | 77                                 |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                                  |
|                                   | <b>Subtotal</b>                     | <b>77</b>                          |
|                                   | <b>Total Irrigated Croplands</b>    | <b>25,314</b>                      |
| <b>Wet/Open Water Areas</b>       |                                     |                                    |
| IIB                               | Cattail/Bullrush Aspect             | 12                                 |
| IIB-E                             | Wet/Vegetation Asp.                 | 9,181                              |
| IIC                               | Wet Flats                           | 16,524                             |
| IIE                               | Riparian                            | 2,597                              |
| IIF                               | Open Water                          | 218                                |
| IIF2                              | Reservoirs                          | 5,719                              |
| IIF4a                             | Temporary Flooded                   | 76                                 |
| IIF4b                             | Sewage Lagoon                       | 24                                 |
| IIF4c                             | Evaporation Pond                    | 9,220                              |
| IIF5                              | Salt Water                          | 664                                |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>44,235</b>                      |
| <b>Residential/Industrial</b>     |                                     |                                    |
| VA                                | Farmsteads                          | 1,562                              |
| VB                                | Residential                         | 79,932                             |
| VB3                               | Open Spaces                         | 9,097                              |
| VC                                | Commercial/Industrial               | 30,095                             |
|                                   | <b>Total Residential/Industrial</b> | <b>120,686</b>                     |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>190,235</b>                     |

<sup>a</sup> The Lower Jordan River Study Area is the lower half of the Jordan River Basin. Therefore, the numbers given are only the totals for the lower half (Salt Lake County) of the basin.

## References

1. *A Water-Related Land Use Inventory Report of the Utah Lake Study Area*, Utah Division of Water Resources, May 1993.
2. *Controlled 35mm Aerial Photography of the Lower Jordan River Study Area/Salt Lake County Water-Related Land Use Inventory - Final Report*, Wojcik Technical Services, June 1994.
3. *Demographic and Economic Analysis*, Governor's Office of Planning and Budget, August 1995.
4. *Hydrologic Inventory of the Utah Lake Drainage Area*, Utah State University, Utah Division of Water Resources, November 1969.
5. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
6. *Landform Map of Utah*, Merril K. Ridd, 1961.
7. *Report of Controlled 35mm Aerial Photography Related to the Jordan River Drainage Water-Related Land Use Inventory*, Mapping and Analytical Photographic Services Inc., August 1988.
8. *Salt Lake County Area-Wide Water Study*; Coon, King, & Knowlton Engineers; Eckhoff, Watson, & Preator Engineering; Horocks & Carollo Engineers; James M. Montgomery Consulting Engineers; Utah Division of Water Resources; April 1982.
9. *Utah State Water Plan, Jordan River Basin, Final Report*, Utah Board of Water Resources, June 1997.
10. *Water-Related Land Use Inventories; Lower Jordan River Study Area*, Utah Division of Water Resources, March 1994.
11. *Water-Related Land Use Inventories; Lower Jordan River Study Area - Final Draft*, Utah Division of Water Resources, June 1996.

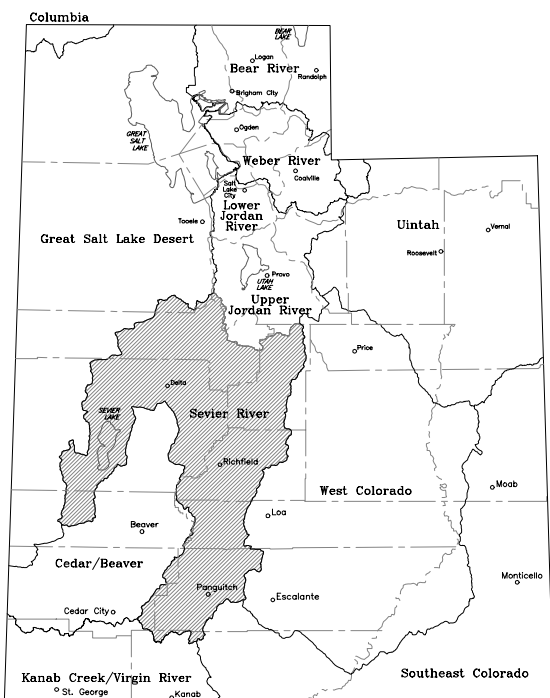


## SEVIER RIVER BASIN

### Basin Description

The Sevier River Basin covers approximately 10,522 (about 12.5 percent of Utah) square miles in the south-central portion of the state. The northern boundary generally follows the Sheeprock Mountains and the Tintic Range. Landforms such as the Wasatch, Awapa, Aquarius and Paunsaugunt Plateaus. The Pink Cliffs and Tushar Mountains surround the eastern bend of the basin. The Crickett, Beaver, San Francisco and Wah Wah Mountains along with the House Range help comprise the boundary of the western bend of the basin.

The Sevier River Basin covers all or part of eight Utah counties: Garfield, Iron, Juab, Kane, Millard, Piute, Sanpete and Sevier. Furthermore, the basin divides into the Delta, East Fork Sevier, Fillmore, Gunnison, San Pitch, Sevier, Sevier Lake and Upper Sevier subareas. Figure 26 locates the Sevier River Basin with respect to the state of Utah borders.



**Figure 26.** Location of the Sevier River Basin.

The shape of the basin generally resembles a large horseshoe and is made up of high plateaus, narrow valleys and broad deserts. The mountains of the basin generally trend from southwest to northeast. Valleys in the basin are generally long and narrow, except where the river flows into Sevier Lake. Drainage in the basin is primarily to the north and west. However, because the basin offers no outward drainage, precipitation remains a part of the basin.

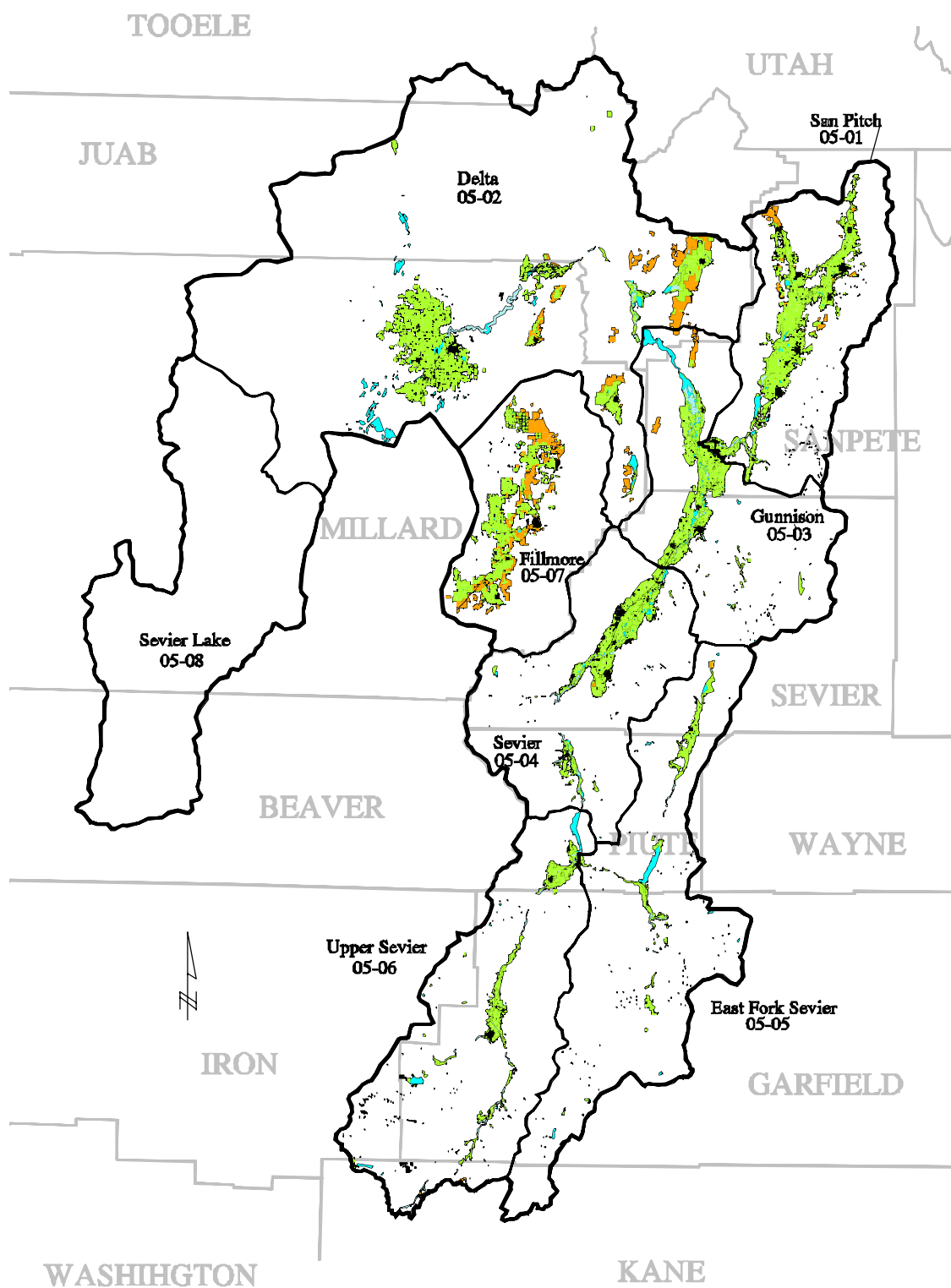
Census data indicate a 1990 population of 48,222 within the Sevier River Basin. Most of that number is spread throughout the basin in small farm communities. The largest of these farm communities is Richfield, located in the middle of the eastern bend of the basin. Other notable towns include Delta, Fillmore, Gunnison, Manti, Monroe, Panguitch and Salina. A notable feature of the basin is the Jericho Sand Dunes.

The climate varies widely with the physiography of the basin. The basin records a low elevation of 4,519 feet near Delta and a high elevation of 12,169 feet at Delano Peak near Marysville. Precipitations range from roughly 6 to 13 inches per year in the valleys to more than 40 inches in the mountains. In addition, the higher elevations experience short, mildly warm summers and long, cold winters. At lower elevations, temperatures and seasons are more moderate and less varied.

Figure 27 illustrates the water-related land use of the Sevier River Basin and indicates that most of the agricultural land use of the basin occurs in long, narrow valleys near the water courses of the basin. The Figure also includes the counties that intersect the basin.

### Data Collection

The Division of Water Resources initially conducted water-related land use inventories in



**Figure 27. Mapped Water-Related Land Use of the Sevier River Basin.**

the summer of 1985. In that year, precipitation continued in abundant supply throughout the state. The rivers and streams of the Sevier River Basin were full. However, because substantial repair work was under way on the basin's dams, canal supply to irrigated fields was low. Consequently, farmers held a lot of fields in idle and fallow. These two categories are over represented in the estimates of 1985. In addition, the wet/open water areas of the basin are over represented due to the heavy precipitation of that year.

In 1993, the division again inventoried the Upper Sevier portion of the basin. That year saw lower than normal precipitation. Therefore, the category of idle is over represented in the 1993, 95 data set.

In the summer of 1995, the division finished the second inventory of the Sevier Basin by completing inspections of the Lower Sevier area. That year was relatively normal and the division believes that data from 1995 on the Lower Sevier River Basin is representative of normal conditions.

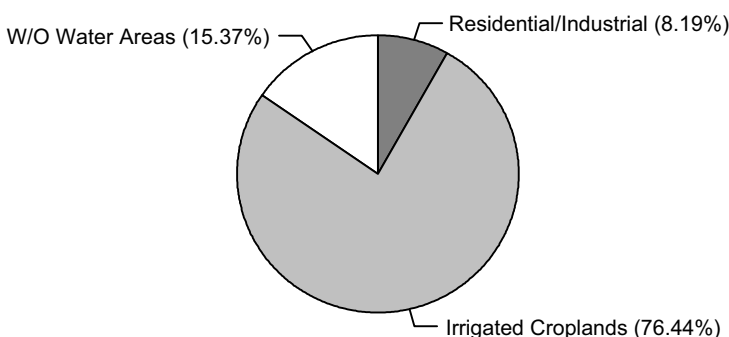
## Data Summary

The division inventoried nearly 500,000 acres of land in the Sevier River Basin. This represents about seven percent of the Sevier River Basin (approximately 6.7 million acres). Areas not inventoried are mainly national forests and open rangeland. Of the 463,521 acres inventoried, 336,747 were surface-irrigated croplands; 17,568 were grasses, hays, and pasture lands which receive subsurface irrigation; 71,259 were phreatophytes and other wet/open water areas; and 37,947 were residential/industrial areas. In addition, 42,671 acres were classified as idle agricultural land. Table 18 summarizes the division's 1981-85 and 1993, 95 land use data.

**Table 18**  
**Sevier River Basin Land Use Summary**  
(Acres)

| Land Use                     | 1981-1985 | 1993, 95 |
|------------------------------|-----------|----------|
| Irrigated Croplands          | 381,086   | 354,315  |
| Wet/Open Water Areas         | 49,625    | 71,259   |
| Residential/Industrial Areas | 31,135    | 37,947   |

The division has further classified the water-related land use within the basin. Figure 28 delineates the above-listed categories of water-related land use by percentage.



**Figure 28.** Delineation of Water-Related Land Use Categories within the Sevier River Basin (1993, 95 Data).

Additionally, Figure 29 represents data from the category of surface irrigated cropland. The data are arranged into 20 different subcategories. Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Tables 19 and 20. Table 19 contains the data collected by study area while Table 20 contains data collected by county.

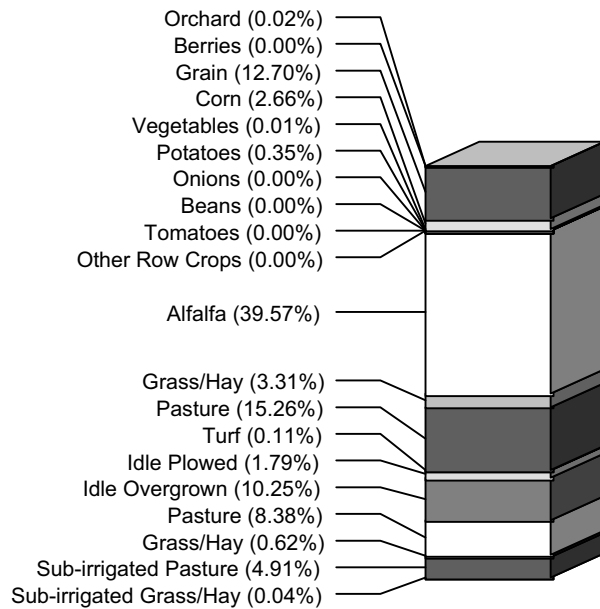
**TABLE 19**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE SEVIER RIVER BASIN**  
**(1993 and 1995 Data - Units in Acres)**

| Code                              | Cover                               | San<br>Pitch<br>05-01 | Delta<br>05-02 | Gunnison<br>05-03 | Sevier<br>05-04 | East Fork<br>Sevier<br>05-05 | Upper<br>Sevier<br>05-06 | Fillmore<br>05-07 | Sevier<br>Lake<br>05-08 | Basin<br>Total |
|-----------------------------------|-------------------------------------|-----------------------|----------------|-------------------|-----------------|------------------------------|--------------------------|-------------------|-------------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                       |                |                   |                 |                              |                          |                   |                         |                |
| IA1a                              | Orchard                             | 4                     | 32             | 6                 | 20              | 0                            | 0                        | 5                 | 0                       | 67             |
| IA1f                              | Nurseries                           | 2                     | 0              | 0                 | 0               | 0                            | 0                        | 0                 | 0                       | 2              |
| IA2a                              | Grain                               | 8,735                 | 16,372         | 5,624             | 4,751           | 593                          | 1,605                    | 7,335             | 0                       | 45,015         |
| IA2a1                             | Corn                                | 536                   | 1,315          | 2,563             | 3,375           | 18                           | 43                       | 1,573             | 0                       | 9,423          |
| IA2b                              | Vegetables                          | 0                     | 0              | 27                | 0               | 0                            | 0                        | 0                 | 0                       | 27             |
| IA2b1                             | Potatoes                            | 0                     | 0              | 0                 | 0               | 0                            | 0                        | 1,241             | 0                       | 1,241          |
| IA2b2                             | Onions                              | 0                     | 0              | 0                 | 0               | 0                            | 0                        | 0                 | 0                       | 0              |
| IA2b3                             | Beans                               | 0                     | 0              | 0                 | 12              | 0                            | 0                        | 0                 | 0                       | 12             |
| IA2b4                             | Tomatoes                            | 0                     | 0              | 0                 | 0               | 0                            | 0                        | 0                 | 0                       | 0              |
| IA2c                              | Other Row Crops                     | 0                     | 0              | 0                 | 0               | 0                            | 0                        | 0                 | 0                       | 0              |
| IA3a                              | Alfalfa                             | 22,527                | 49,861         | 17,120            | 16,186          | 3,753                        | 7,099                    | 23,670            | 0                       | 140,216        |
| IA3b                              | Grass/Hay                           | 5,644                 | 528            | 1,056             | 1,107           | 2,447                        | 940                      | 0                 | 0                       | 11,722         |
| IA3d                              | Pasture                             | 12,997                | 3,264          | 7,699             | 10,113          | 3,720                        | 9,647                    | 6,633             | 0                       | 54,073         |
| IA3c                              | Grass/Turf                          | 5                     | 227            | 0                 | 168             | 0                            | 0                        | 0                 | 0                       | 400            |
| IA4a                              | Idle Plowed                         | 845                   | 2,759          | 490               | 711             | 406                          | 214                      | 925               | 0                       | 6,350          |
| IA4b                              | Idle Overgrown                      | 5,591                 | 9,860          | 1,687             | 2,081           | 1,555                        | 725                      | 14,822            | 0                       | 36,321         |
| IIA1a                             | Pasture (Surf. & Sub.)              | 5,483                 | 133            | 5,486             | 4,728           | 7,200                        | 6,485                    | 179               | 0                       | 29,694         |
| IIA1b                             | Hayland (Surf. & Sub.)              | 2,135                 | 49             | 0                 | 0               | 0                            | 0                        | 0                 | 0                       | 2,184          |
|                                   | <b>Subtotal</b>                     | <b>64,504</b>         | <b>84,400</b>  | <b>41,758</b>     | <b>43,252</b>   | <b>19,692</b>                | <b>26,758</b>            | <b>56,383</b>     | <b>0</b>                | <b>336,747</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                       |                |                   |                 |                              |                          |                   |                         |                |
| IIA2a                             | Sub-irrigated Pasture               | 14,203                | 1,710          | 92                | 510             | 361                          | 491                      | 42                | 0                       | 17,409         |
| IIA2b                             | Sub-irrigated Grass/Hay             | 159                   | 0              | 0                 | 0               | 0                            | 0                        | 0                 | 0                       | 159            |
|                                   | <b>Subtotal</b>                     | <b>14,362</b>         | <b>1,710</b>   | <b>92</b>         | <b>510</b>      | <b>361</b>                   | <b>491</b>               | <b>42</b>         | <b>0</b>                | <b>17,568</b>  |
| <b>Total Irrigated Croplands</b>  |                                     | <b>78,866</b>         | <b>86,110</b>  | <b>41,850</b>     | <b>43,762</b>   | <b>20,053</b>                | <b>27,249</b>            | <b>56,425</b>     | <b>0</b>                | <b>354,315</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                       |                |                   |                 |                              |                          |                   |                         |                |
| IIC                               | Wet Flats                           | 1,671                 | 18,297         | 267               | 0               | 0                            | 0                        | 0                 | 0                       | 20,235         |
| IIE                               | Riparian Areas                      | 3,933                 | 6,247          | 9,414             | 2,325           | 427                          | 523                      | 2,469             | 0                       | 25,338         |
| IIF                               | Open Water                          | 2,307                 | 3,422          | 3,055             | 557             | 3,186                        | 4,366                    | 41                | 0                       | 16,934         |
| IIF4a                             | Temp Flooded                        | 305                   | 7,046          | 446               | 0               | 0                            | 0                        | 0                 | 0                       | 7,797          |
| IIF4b                             | Sewage Lagoon                       | 308                   | 144            | 157               | 264             | 4                            | 4                        | 74                | 0                       | 955            |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>8,524</b>          | <b>35,156</b>  | <b>13,339</b>     | <b>3,146</b>    | <b>3,617</b>                 | <b>4,893</b>             | <b>2,584</b>      | <b>0</b>                | <b>71,259</b>  |
| <b>Residential/Industrial</b>     |                                     |                       |                |                   |                 |                              |                          |                   |                         |                |
| VA                                | Residential                         | 4,875                 | 2,420          | 1,034             | 1,424           | 589                          | 475                      | 903               | 0                       | 11,720         |
| VB                                | Residential                         | 5,546                 | 3,309          | 1,505             | 4,265           | 131                          | 2,750                    | 1,660             | 0                       | 19,166         |
| VB3                               | Public Open Space                   | 466                   | 223            | 130               | 434             | 8                            | 95                       | 160               | 0                       | 1,516          |
| VC                                | Commercial/Industrial               | 740                   | 3,297          | 355               | 393             | 51                           | 445                      | 264               | ---                     | 5,545          |
|                                   | <b>Total Residential/Industrial</b> | <b>11,627</b>         | <b>9,249</b>   | <b>3,024</b>      | <b>6,516</b>    | <b>779</b>                   | <b>3,765</b>             | <b>2,987</b>      | <b>---</b>              | <b>37,947</b>  |
| <b>Total Land Use/Land Cover</b>  |                                     | <b>99,017</b>         | <b>130,515</b> | <b>58,213</b>     | <b>53,424</b>   | <b>24,449</b>                | <b>35,907</b>            | <b>61,996</b>     | <b>0</b>                | <b>463,521</b> |

**TABLE 20**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE SEVIER RIVER BASIN**  
**(1993 and 1995 Data - Units in Acres)**

| Code                              | Cover                               | Iron<br>County | Piute<br>County | Garfield<br>County | Kane<br>County | Sevier<br>County | Sanpete<br>County | Millard<br>County | Juab<br>County | Tooele<br>County | Basin<br>Total |
|-----------------------------------|-------------------------------------|----------------|-----------------|--------------------|----------------|------------------|-------------------|-------------------|----------------|------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                |                 |                    |                |                  |                   |                   |                |                  |                |
| IA1a                              | Orchard                             | 0              | 0               | 0                  | 0              | 20               | 10                | 37                | 0              | 0                | 67             |
| IA1f                              | Nurseries                           | 0              | 0               | 0                  | 0              | 0                | 2                 | 0                 | 0              | 0                | 2              |
| IA2a                              | Grain                               | 0              | 1,547           | 1,530              | 0              | 5,862            | 12,368            | 21,312            | 2,396          | 0                | 45,015         |
| IA2a1                             | Corn                                | 0              | 43              | 18                 | 0              | 4,437            | 2,037             | 2,786             | 102            | 0                | 9,423          |
| IA2b                              | Vegetables                          | 0              | 0               | 0                  | 0              | 0                | 27                | 0                 | 0              | 0                | 27             |
| IA2b1                             | Potatoes                            | 0              | 0               | 0                  | 0              | 0                | 0                 | 1,241             | 0              | 0                | 1,241          |
| IA2b2                             | Onions                              | 0              | 0               | 0                  | 0              | 0                | 0                 | 0                 | 0              | 0                | 0              |
| IA2b3                             | Beans                               | 0              | 0               | 0                  | 0              | 12               | 0                 | 0                 | 0              | 0                | 12             |
| IA2b4                             | Tomatoes                            | 0              | 0               | 0                  | 0              | 0                | 0                 | 0                 | 0              | 0                | 0              |
| IA2c                              | Other Row Crops                     | 0              | 0               | 0                  | 0              | 0                | 0                 | 0                 | 0              | 0                | 0              |
| IA3a                              | Alfalfa                             | 0              | 6,661           | 4,991              | 0              | 23,419           | 31,614            | 68,470            | 5,061          | 0                | 140,216        |
| IA3b                              | Grass/Hay                           | 0              | 1,908           | 1,375              | 0              | 1,946            | 5,964             | 466               | 63             | 0                | 11,722         |
| IA3d                              | Pasture                             | 31             | 6,811           | 6,065              | 108            | 14,596           | 16,565            | 9,132             | 568            | 197              | 54,073         |
| IA3c                              | Grass/Turf                          | 0              | 0               | 0                  | 0              | 168              | 5                 | 0                 | 227            | 0                | 400            |
| IA4a                              | Idle Plowed                         | 0              | 388             | 252                | 0              | 907              | 1,097             | 3,214             | 492            | 0                | 6,350          |
| IA4b                              | Idle Overgrown                      | 0              | 1,664           | 602                | 0              | 2,709            | 6,665             | 23,896            | 785            | 0                | 36,321         |
| IIA1a                             | Pasture (Surf. & Sub.)              | 444            | 5,229           | 6,321              | 227            | 8,255            | 8,906             | 179               | 133            | 0                | 29,694         |
| IIA1b                             | Grass/Hay (Surf. & Sub.)            | 0              | 0               | 0                  | 0              | 0                | 2,135             | 0                 | 49             | 0                | 2,184          |
|                                   | <b>Subtotal</b>                     | <b>475</b>     | <b>24,251</b>   | <b>21,154</b>      | <b>335</b>     | <b>62,331</b>    | <b>87,395</b>     | <b>130,733</b>    | <b>9,876</b>   | <b>197</b>       | <b>336,747</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                |                 |                    |                |                  |                   |                   |                |                  |                |
| IIA2a                             | Sub-irrigated Pasture               | 65             | 420             | 288                | 199            | 480              | 14,205            | 373               | 1,379          | 0                | 17,409         |
| IIA2b                             | Sub-irrigated Grass/Hay             | 0              | 0               | 0                  | 0              | 0                | 159               | 0                 | 0              | 0                | 159            |
|                                   | <b>Subtotal</b>                     | <b>65</b>      | <b>420</b>      | <b>288</b>         | <b>199</b>     | <b>480</b>       | <b>14,364</b>     | <b>373</b>        | <b>1,379</b>   | <b>0</b>         | <b>17,568</b>  |
|                                   | <b>Total Irrigated Croplands</b>    | <b>540</b>     | <b>24,671</b>   | <b>21,442</b>      | <b>534</b>     | <b>62,811</b>    | <b>101,759</b>    | <b>131,106</b>    | <b>11,255</b>  | <b>197</b>       | <b>354,315</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                |                 |                    |                |                  |                   |                   |                |                  |                |
| IIC                               | Wet Flats                           | 0              | 0               | 0                  | 0              | 0                | 1,938             | 16,583            | 1,714          | 0                | 20,235         |
| IIE                               | Riparian Areas                      | 38             | 885             | 578                | 41             | 2,587            | 12,016            | 7,539             | 1,630          | 24               | 25,338         |
| IIF                               | Open Water                          | 10             | 5,002           | 1,562              | 631            | 1,379            | 2,741             | 3,065             | 2,539          | 5                | 16,934         |
| IIF4a                             | Temp Flooded                        | 0              | 0               | 0                  | 0              | 0                | 345               | 6,217             | 1,235          | 0                | 7,797          |
| IIF4b                             | Sewage Lagoon                       | 0              | 0               | 4                  | 4              | 386              | 344               | 214               | 3              | 0                | 955            |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>48</b>      | <b>5,887</b>    | <b>2,144</b>       | <b>676</b>     | <b>4,352</b>     | <b>17,384</b>     | <b>33,618</b>     | <b>7,121</b>   | <b>29</b>        | <b>71,259</b>  |
| <b>Residential/Industrial</b>     |                                     |                |                 |                    |                |                  |                   |                   |                |                  |                |
| VA                                | Residential                         | 0              | 406             | 421                | 0              | 2,098            | 5,473             | 3,100             | 210            | 12               | 11,720         |
| VB                                | Residential                         | 0              | 1,021           | 1,158              | 1,186          | 4,735            | 6,097             | 4,234             | 735            | 0                | 19,166         |
| VB3                               | Public Open Space                   | 0              | 121             | 69                 | 0              | 442              | 501               | 371               | 12             | 0                | 1,516          |
| VC                                | Commercial/Industrial               | 0              | 172             | 309                | 17             | 720              | 765               | 3,359             | 203            | 0                | 5,545          |
|                                   | <b>Total Residential/Industrial</b> | <b>0</b>       | <b>1,720</b>    | <b>1,957</b>       | <b>1,203</b>   | <b>7,995</b>     | <b>12,836</b>     | <b>11,064</b>     | <b>1,160</b>   | <b>12</b>        | <b>37,947</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>588</b>     | <b>32,278</b>   | <b>25,543</b>      | <b>2,413</b>   | <b>75,158</b>    | <b>131,979</b>    | <b>175,788</b>    | <b>19,536</b>  | <b>238</b>       | <b>463,521</b> |

6. *Water-Related Land Use Inventories, Sevier River Basin, Utah Division of Water Resources, October 1992.*



**Figure 29.** Breakdown of Surface Irrigated Cropland within the Sevier River Basin (1993, 95 Data).

## References

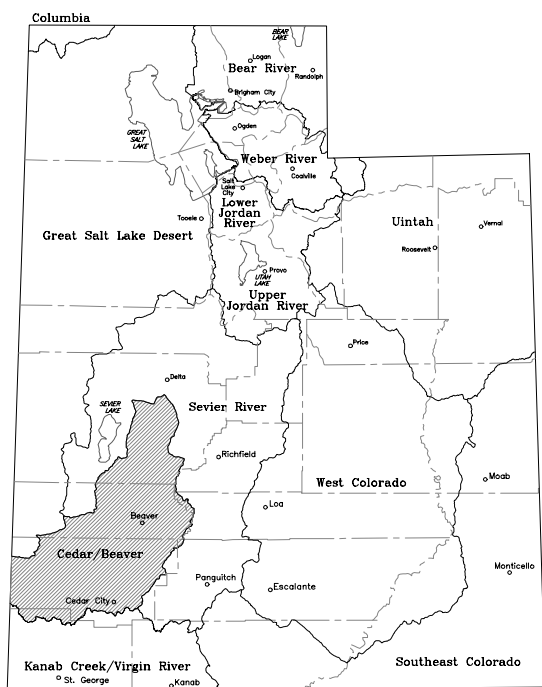
1. *Controlled 35mm Aerial Photography of the Upper Jordan River Study Area and the Lower Part of the Sevier Unit Water-Related Land Use Inventory - Final Report*, Wojcik Technical Services, August 1995.
2. *Landform Map of Utah*, M. K. Ridd, 1961.
3. *Hydrologic Inventory of the Sevier River Basin*, Utah Division of Water Resources, January 1991.
4. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
5. *Sevier River Basin - Final Report for 35mm Photography*, Olympus Aerial Surveys Inc., October 1985.

## CEDAR/BEAVER BASIN

### Basin Description

The Cedar/Beaver Basin contains 3.6 million acres located in the southwestern area of Utah. With the exception of 38,500 acres that spill across the Nevada state line, Utah claims the entire basin. The southern boundary of the basin consists of the Bull Valley Mountains and the Harmony mountains. Indian Peak Ridge, the Wah Wah Mountains, the San Francisco Mountains, and the Crickett Mountains form the western boundary of the basin. Peaks and ridges from the Markagunt Plateau, Tushar Mountains, Pavant Range, The Cinders and Black Rock Gap mark the basin's eastern and northern boundaries.

The Cedar/Beaver Basin divides into the Beaver-Milford, Cedar-Parowan and Escalante Desert study areas. In addition, the basin spans Beaver, Garfield, Iron, Millard and Washington Counties. Figure 30 locates the Cedar/Beaver Basin within Utah's borders.



**Figure 30.** Location of the Cedar/Beaver Basin.

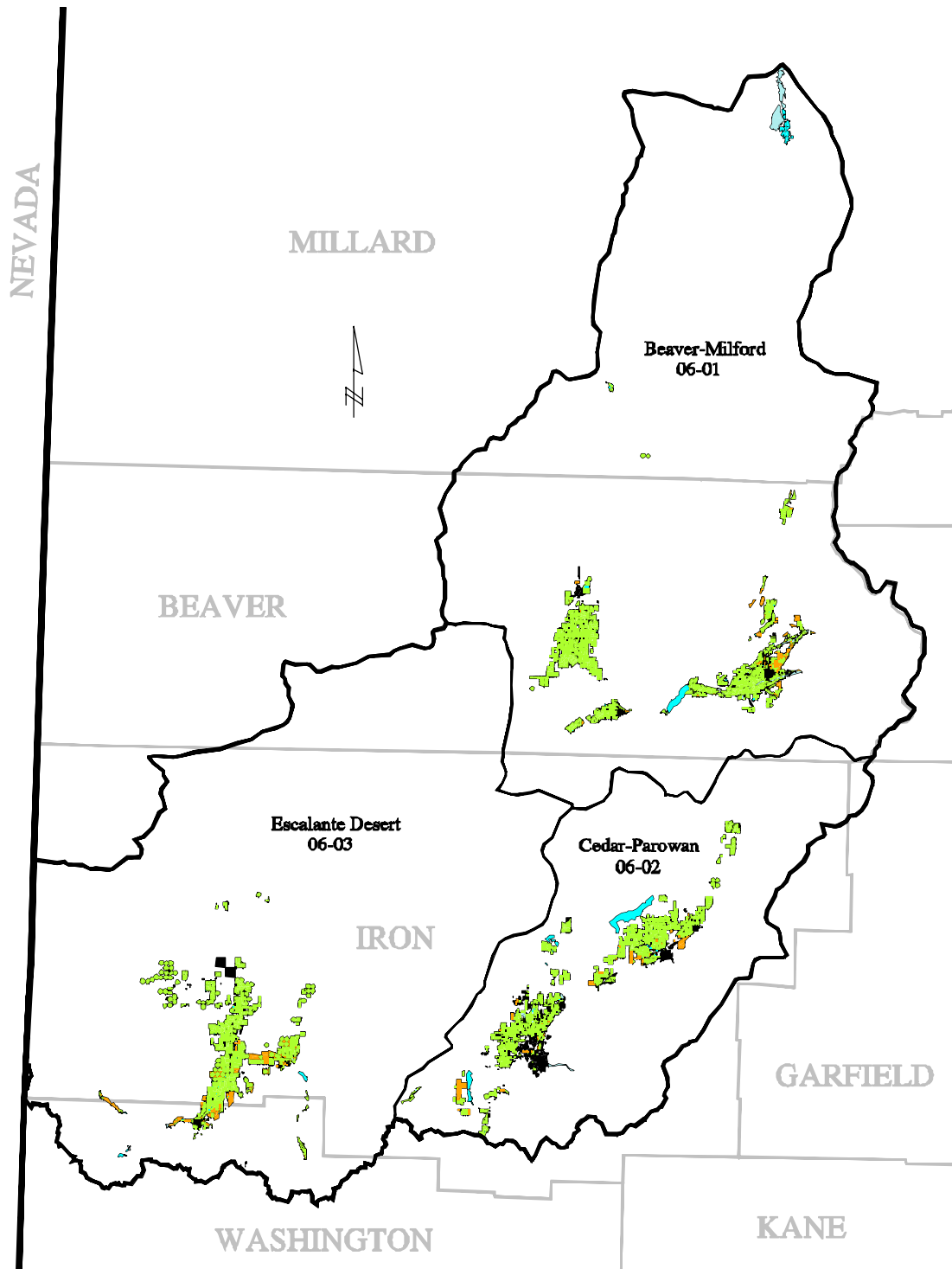
Census data from 1990 indicate a basin population of 26,485. A breakdown of basin demographics shows that 18.0 percent resides in Beaver County, 77.6 percent live in Iron County, and 4.4 percent are in Washington County. Garfield and Millard counties claim less than 1/10 of 1 percent of the basin population. Cedar City remains the largest town in the basin with a 1990 population of 13,443. A notable feature of the basin is the Cedar Breaks National Monument.

Like most basins in Utah, variations in the climate in the Cedar/Beaver Basin occur due to variations in physiography. Elevations in the basin range from 12,169 feet at Delano Peak in the Tushar Mountains on the east and 9,660 feet at Frisco Peak in the San Francisco Mountains on the west to 5,600 feet in Cedar Valley, 5,200 feet in Escalante Valley, and 4,600 near Clear Lake. The rugged terrain of the higher mountain areas invites long, rigorous winters and short, cool summers. Lower valleys within the basin see much more tempered seasons. Temperatures vary from below 0 ° F to more than 100 ° F with daily fluctuations reaching a 40 ° F difference. Annual precipitation ranges from eight inches in the northwestern deserts of the basin to more than forty inches in the Tushar Mountains and Markagunt Plateau.

The basin consists predominantly of stable farm and ranch enterprises and rural communities. Figure 31 illustrates the water-related land use of the Cedar/Beaver Basin and suggests that the majority of the agricultural land use occurs in the outlying areas of each town.

### Data Collection

In the summer of 1989, the Division of Water Resources inventoried water-related lands throughout the Cedar/Beaver Study Unit. By 1989, excess water from the floods of 1983 through 1987 had receded and the basin began



**Figure 31. Mapped Water-Related Land Use of the Cedar/Beaver Basin.**

a series of relatively dry years. Therefore, land use categories such as idle and fallow fields may be somewhat over represented in the data due to the lack of water supplied to the basin.

## Data Summary

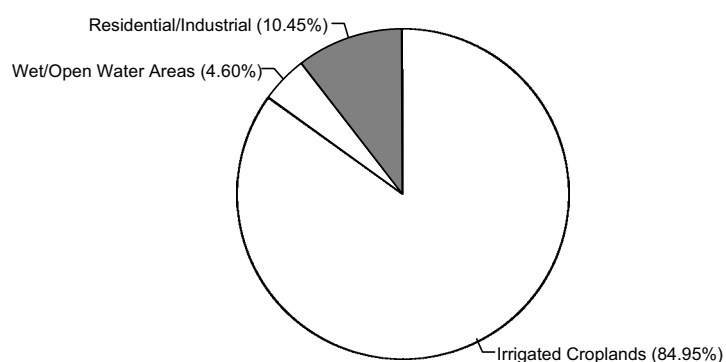
The division inventoried more than 140,400 acres of land in the Cedar/Beaver Basin. This represents only about 3.9 percent of the entire basin. Areas not inventoried are mainly rangeland and national forests. Of the inventoried acres, 110,813 were irrigated lands (including land that was fallow, idle or sub-irrigated), 6,006 were wet/open water areas (including reservoirs), and 13,633 were residential/industrial areas (including farmsteads and rural housing). Table 21 summarizes the division's 1989 land use data. The division plans to collect additional data in 1999.

| <b>Table 21</b><br><b>Cedar/Beaver Basin Land Use Summary</b><br>(Acres) |         |                   |
|--|---------|-------------------|
| Land Use   | 1989    | 1999 <sup>1</sup> |
| Irrigated Croplands  | 110,813 |                   |
| Wet/Open Water Areas   | 6,006   |                   |
| Residential/Industrial Areas   | 13,633  |                   |

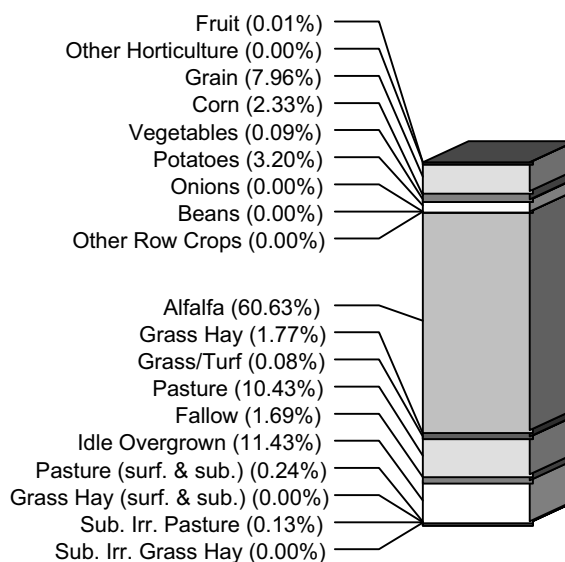
<sup>1</sup> Next planned inventory

The division has further classified the water-related land use within the basin. Figure 32 delineates the three categories of water-related land use listed above by percentage.

Additionally, Figure 33 represents data from the category of surface irrigated cropland. The data are arranged into 19 different subcategories.



**Figure 32.** Delineation of Water-Related Land Use Categories within the Cedar/Beaver Basin (1989 Data).



**Figure 33.** Breakdown of Surface Irrigated Cropland within the Cedar/Beaver Basin (1989 Data).

Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Table 22 by study area and Table 23 by county.

**TABLE 22**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE CEDAR/BEAVER BASIN**  
**(1989 Data - Units in Acres)**

| Code                              | Cover                               | Beaver-<br>Milford<br>06-01 | Cedar-<br>Parowan<br>06-02 | Escalante<br>Desert<br>06-03 | Basin<br>Total |
|-----------------------------------|-------------------------------------|-----------------------------|----------------------------|------------------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                             |                            |                              |                |
| IA1a                              | Fruit                               | 0                           | 11                         | 4                            | 15             |
| IA1e                              | Other Horticulture                  | 0                           | 0                          | 0                            | 0              |
| IA2a                              | Grain                               | 2,372                       | 3,622                      | 2,828                        | 8,822          |
| IA2a1                             | Corn                                | 1,928                       | 474                        | 179                          | 2,581          |
| IA2b                              | Vegetables                          | 0                           | 94                         | 1                            | 95             |
| IA2b1                             | Potatoes                            | 100                         | 0                          | 3,441                        | 3,541          |
| IA2b2                             | Onions                              | 0                           | 0                          | 0                            | 0              |
| IA2b3                             | Beans                               | 0                           | 0                          | 0                            | 0              |
| IA2c                              | Other Row Crops                     | 0                           | 0                          | 0                            | 0              |
| IA3a                              | Alfalfa                             | 22,829                      | 20,288                     | 24,068                       | 67,185         |
| IA3b                              | Grass Hay                           | 1,397                       | 444                        | 124                          | 1,965          |
| IA3c                              | Grass/Turf                          | 21                          | 64                         | 0                            | 85             |
| IA3d                              | Pasture                             | 6,387                       | 4,553                      | 621                          | 11,561         |
| IA4a                              | Fallow                              | 435                         | 1,221                      | 222                          | 1,878          |
| IA4b                              | Idle Overgrown                      | 3,611                       | 5,274                      | 3,786                        | 12,671         |
| IIA1a                             | Pasture (surf. & sub.)              | 266                         | 0                          | 0                            | 266            |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0                           | 0                          | 0                            | 0              |
|                                   | <b>Subtotal</b>                     | <b>39,346</b>               | <b>36,045</b>              | <b>35,274</b>                | <b>110,665</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                             |                            |                              |                |
| IIA2a                             | Sub. Irr. Pasture                   | 141                         | 7                          | 0                            | 148            |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                           | 0                          | 0                            | 0              |
|                                   | <b>Subtotal</b>                     | <b>141</b>                  | <b>7</b>                   | <b>0</b>                     | <b>148</b>     |
|                                   | <b>Total Irrigated Croplands</b>    | <b>39,487</b>               | <b>36,052</b>              | <b>35,274</b>                | <b>110,813</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                             |                            |                              |                |
| IIB                               | Cattail/Bullrush Aspect             | 0                           | 0                          | 0                            | 0              |
| IIB-E                             | Wet/Vegetation Asp.                 | 0                           | 0                          | 0                            | 0              |
| IIC                               | Wet Flats                           | 0                           | 0                          | 0                            | 0              |
| IIE                               | Riparian                            | 444                         | 293                        | 80                           | 817            |
| IIF                               | Open Water                          | 1,259                       | 2,407                      | 371                          | 4,037          |
| IIF2                              | Reservoirs                          | 0                           | 0                          | 0                            | 0              |
| IIF4a                             | Temporary Flooded                   | 0                           | 1,005                      | 0                            | 1,005          |
| IIF4b                             | Sewage Lagoon                       | 58                          | 56                         | 0                            | 114            |
| IIF4c                             | Evaporation Pond                    | 33                          | 0                          | 0                            | 33             |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>1,794</b>                | <b>3,761</b>               | <b>451</b>                   | <b>6,006</b>   |
| <b>Residential/Industrial</b>     |                                     |                             |                            |                              |                |
| VA                                | Farmsteads                          | 822                         | 1,231                      | 541                          | 2,594          |
| VB                                | Residential                         | 1,915                       | 4,531                      | 1,914                        | 8,360          |
| VB3                               | Open Spaces                         | 168                         | 250                        | 12                           | 430            |
| VC                                | Commercial/Industrial               | 658                         | 1,294                      | 297                          | 2,249          |
|                                   | <b>Total Residential/Industrial</b> | <b>3,563</b>                | <b>7,306</b>               | <b>2,764</b>                 | <b>13,633</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>44,844</b>               | <b>47,119</b>              | <b>38,489</b>                | <b>130,452</b> |

**TABLE 23**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE CEDAR/BEAVER BASIN**  
**(1989 Data - Units in Acres)**

| Code                              | Cover                               | Beaver<br>County | Iron<br>County | Millard<br>County | Washington<br>County | Basin<br>Total |
|-----------------------------------|-------------------------------------|------------------|----------------|-------------------|----------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                  |                |                   |                      |                |
| IA1a                              | Fruit                               | 0                | 15             | 0                 | 0                    | 15             |
| IA1e                              | Other Horticulture                  | 0                | 0              | 0                 | 0                    | 0              |
| IA2a                              | Grain                               | 2,361            | 6,229          | 11                | 221                  | 8,822          |
| IA2a1                             | Corn                                | 1,902            | 648            | 26                | 5                    | 2,581          |
| IA2b                              | Vegetables                          | 0                | 94             | 0                 | 1                    | 95             |
| IA2b1                             | Potatoes                            | 100              | 3,250          | 0                 | 191                  | 3,541          |
| IA2b2                             | Onions                              | 0                | 0              | 0                 | 0                    | 0              |
| IA2b3                             | Beans                               | 0                | 0              | 0                 | 0                    | 0              |
| IA2c                              | Other Row Crops                     | 0                | 0              | 0                 | 0                    | 0              |
| IA3a                              | Alfalfa                             | 22,800           | 43,207         | 29                | 1,149                | 67,185         |
| IA3b                              | Grass Hay                           | 1,397            | 464            | 0                 | 104                  | 1,965          |
| IA3c                              | Grass/Turf                          | 21               | 64             | 0                 | 0                    | 85             |
| IA3d                              | Pasture                             | 6,305            | 4,790          | 82                | 384                  | 11,561         |
| IA4a                              | Fallow                              | 435              | 1,368          | 0                 | 75                   | 1,878          |
| IA4b                              | Idle Overgrown                      | 3,379            | 8,603          | 232               | 457                  | 12,671         |
| IIA1a                             | Pasture (surf. & sub.)              | 266              | 0              | 0                 | 0                    | 266            |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0                | 0              | 0                 | 0                    | 0              |
|                                   | <b>Subtotal</b>                     | <b>38,966</b>    | <b>68,732</b>  | <b>380</b>        | <b>2,587</b>         | <b>110,665</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                  |                |                   |                      |                |
| IIA2a                             | Sub. Irr. Pasture                   | 141              | 7              | 0                 | 0                    | 148            |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                | 0              | 0                 | 0                    | 0              |
|                                   | <b>Subtotal</b>                     | <b>141</b>       | <b>7</b>       | <b>0</b>          | <b>0</b>             | <b>148</b>     |
| <b>Total Irrigated Croplands</b>  |                                     | <b>39,107</b>    | <b>68,739</b>  | <b>380</b>        | <b>2,587</b>         | <b>110,813</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                  |                |                   |                      |                |
| IIB                               | Cattail/Bullrush Aspect             | 0                | 0              | 0                 | 0                    | 0              |
| IIB-E                             | Wet/Vegetation Asp.                 | 0                | 0              | 0                 | 0                    | 0              |
| IIC                               | Wet Flats                           | 0                | 0              | 0                 | 0                    | 0              |
| IIE                               | Riparian                            | 440              | 300            | 4                 | 73                   | 817            |
| IIF                               | Open Water                          | 1,225            | 2,656          | 34                | 122                  | 4,037          |
| IIF2                              | Reservoirs                          | 0                | 0              | 0                 | 0                    | 0              |
| IIF4a                             | Temporary Flooded                   | 0                | 1,005          | 0                 | 0                    | 1,005          |
| IIF4b                             | Sewage Lagoon                       | 58               | 56             | 0                 | 0                    | 114            |
| IIF4c                             | Evaporation Pond                    | 33               | 0              | 0                 | 0                    | 33             |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>1,756</b>     | <b>4,017</b>   | <b>38</b>         | <b>195</b>           | <b>6,006</b>   |
| <b>Residential/Industrial</b>     |                                     |                  |                |                   |                      |                |
| VA                                | Farmsteads                          | 812              | 1,735          | 10                | 37                   | 2,594          |
| VB                                | Residential                         | 1,911            | 5,985          | 4                 | 460                  | 8,360          |
| VB3                               | Open Spaces                         | 168              | 252            | 0                 | 10                   | 430            |
| VC                                | Commercial/Industrial               | 658              | 1,554          | 0                 | 37                   | 2,249          |
|                                   | <b>Total Residential/Industrial</b> | <b>3,549</b>     | <b>9,526</b>   | <b>14</b>         | <b>544</b>           | <b>13,633</b>  |
| <b>Total Land Use/Land Cover</b>  |                                     | <b>44,412</b>    | <b>82,282</b>  | <b>432</b>        | <b>3,326</b>         | <b>130,452</b> |

## References

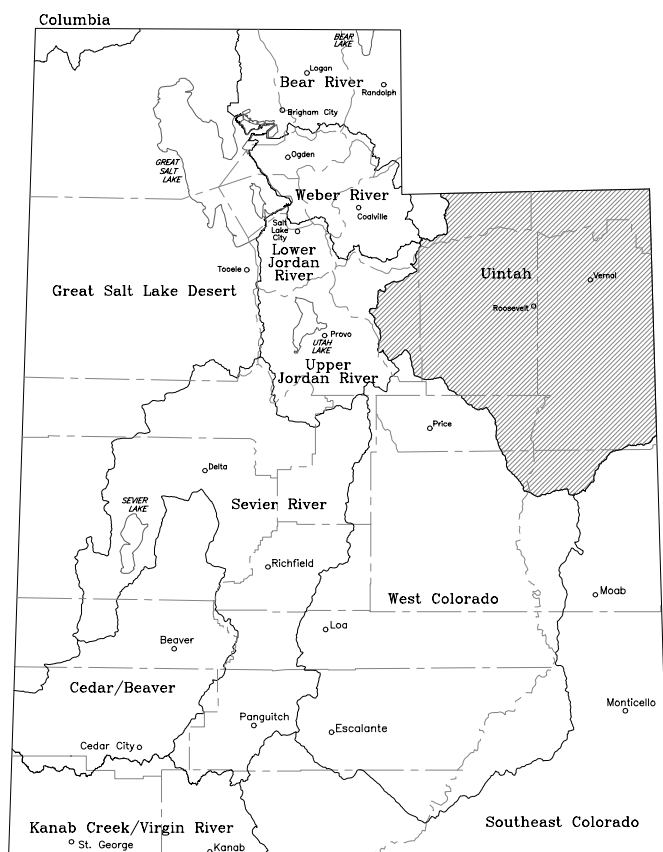
1. *Landform Map of Utah*, Merril K. Ridd, 1961.
2. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
3. *Report of Controlled 35mm Aerial Photography Related to the Cedar/Beaver Basin Water-Related Land Use Inventory*, Mapping and Analytical Photographic Services Inc., September 1989.
3. *Utah State Water Plan, Cedar/Beaver Basin*, Utah Division of Water Resources, April 1995.
4. *Water-Related Land Use Inventories, Cedar/Beaver Study Unit*, Utah Division of Water Resources, March 1993.

## UINTAH BASIN

### Basin Description

The Uintah Basin covers approximately 10,890 square miles of the eastern portion of Utah. The Utah/Wyoming state line forms much of the basin's northern and eastern boundary. Portions of the Wasatch Range and the Roan Cliffs comprise the southern and western boundaries of the basin.

The basin spans all or part of nine counties: Carbon, Daguerre, Emery, Duchesne, Grand, Summit, Uintah, Utah and Wasatch. The Upper Green, Ashley-Brush, Uinta, Green and White subareas comprise the Uintah Basin. Figure 34 locates the Uintah Basin with respect to the state of Utah borders.



**Figure 34.** Location of the Uintah Basin.

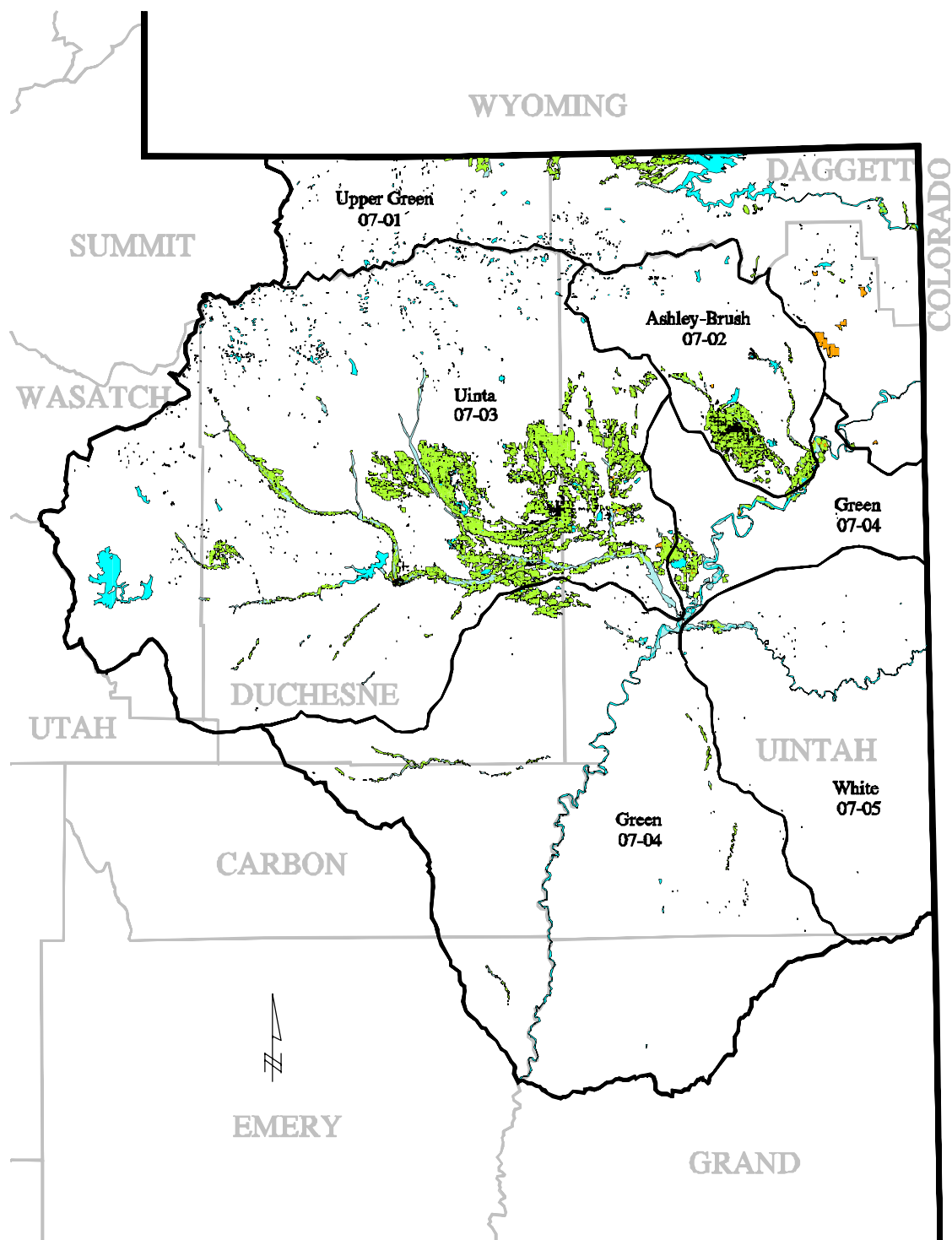
The Uintah Basin maintains a wide variety of valleys and mountains. The basin records a low elevation of 4,040 feet above mean sea level at a point along the Green River and gradually increases throughout several of the valleys into the higher mountains and plateaus of the basin. Kings Peak, located in the Uinta Mountains, stands 13,528 feet above mean sea level. Other peaks along the same ridge include Mt. Emmons at 13,440 feet, Gilbert Peak at 13,422, and Mt. Lovenia at 13,219 feet above mean sea level.

The climate varies widely with the physiography of the basin. Average precipitation ranges from less than 6 inches per year near Roosevelt to more than 40 inches in the Uinta Mountains. Normal January temperatures range from near zero degrees Fahrenheit to near 30 while normal July temperatures range from the low 40s to the low 90s. The basin experiences short, mildly warm summers and long, cold winters at the higher elevations. At lower elevations, temperatures and seasons are more moderate and less varied.

Figure 35 illustrates the water-related land use of the basin and indicates that agriculture within the basin occurs mainly in the valley in and around Duchesne, Roosevelt and Vernal. Additionally, considerable acreage along the Duchesne, Green, Strawberry and White rivers is regularly farmed. The figure also depicts the hydrologic study areas and the county lines within the basin.

### Data Collection

The Division of Water Resources conducted water-related land use inventories in the summer of 1991. That year was relatively normal and the division believes that data from 1991 on the Uintah Basin are representative of normal conditions.



**Figure 35. Mapped Water-Related Land Use of the Uinta Basin.**

## Data Summary

The division inventoried more than 330,475 acres of land in the Uintah Basin. This represents only about 4.7 percent of the entire basin. Areas not inventoried are mainly rangeland and national forests. Of the inventoried acres, 212,206 were irrigated lands (including land that was fallow, idle or sub-irrigated), 94,453 were wet/open water areas (including reservoirs and mountain lakes), and 18,169 were residential/industrial areas (including farmsteads and rural housing). Table 24 summarizes the division's 1967 and 1992 land use data.

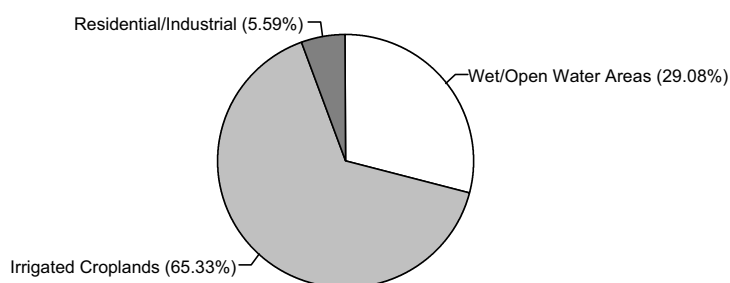
| <b>Table 24</b><br><b>Uintah Basin Land Use Summary</b><br><b>(Acres)</b> |                      |         |
|---|----------------------|---------|
| Land Use  | 1967                 | 1992    |
| Irrigated Croplands   | 249,527              | 212,206 |
| Wet/Open Water Areas  | 158,547 <sup>1</sup> | 94,453  |
| Residential/Industrial Areas  | 6,754                | 18,169  |

<sup>1</sup> Several areas were estimated in this inventory.

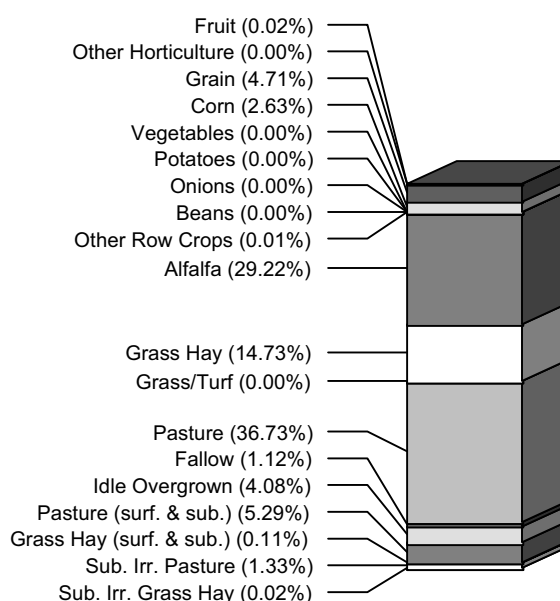
The division has further classified the water-related land use within the basin. Figure 36 delineates the three categories of water-related land use listed above by percentage.

Additionally, Figure 37 represents data from the category of surface irrigated cropland. The data are arranged into 19 different subcategories.

Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Tables 25 and 26. Table 25 contains the data collected by study area while Table 26 contains data collected by county.



**Figure 36.** Delineation of Water-Related Land Use Categories within the Uintah Basin (1992 Data).



**Figure 37.** Breakdown of Surface Irrigated Cropland within the Uintah Basin (1992 Data).

**TABLE 25**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE UINTAH BASIN**  
**(1992 Data - Units in Acres)**

| Code                              | Cover                               | Upper<br>Green<br>07-01 | Ashley<br>Brush<br>07-02 | Uinta<br>07-03 | Green<br>07-04 | White<br>07-05 | Basin<br>Total |
|-----------------------------------|-------------------------------------|-------------------------|--------------------------|----------------|----------------|----------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                         |                          |                |                |                |                |
| IA1a                              | Fruit                               | 0                       | 10                       | 23             | 0              | 0              | 33             |
| IA1e                              | Other Horticulture                  | 0                       | 0                        | 0              | 0              | 0              | 0              |
| IA2a                              | Grain                               | 7                       | 929                      | 7,701          | 1,363          | 0              | 10,000         |
| IA2a1                             | Corn                                | 86                      | 944                      | 3,626          | 918            | 0              | 5,574          |
| IA2b                              | Vegetables                          | 0                       | 0                        | 0              | 0              | 0              | 0              |
| IA2b1                             | Potatoes                            | 0                       | 2                        | 7              | 0              | 0              | 9              |
| IA2b2                             | Onions                              | 0                       | 0                        | 0              | 0              | 0              | 0              |
| IA2b3                             | Beans                               | 0                       | 0                        | 0              | 0              | 0              | 0              |
| IA2c                              | Other Row Crops                     | 0                       | 0                        | 12             | 0              | 0              | 12             |
| IA3a                              | Alfalfa                             | 2,445                   | 11,936                   | 36,142         | 10,759         | 722            | 62,004         |
| IA3b                              | Grass Hay                           | 4,860                   | 1,014                    | 24,700         | 566            | 127            | 31,267         |
| IA3c                              | Grass/Turf                          | 0                       | 0                        | 5              | 0              | 0              | 5              |
| IA3d                              | Pasture                             | 3,449                   | 8,616                    | 62,822         | 2,882          | 178            | 77,947         |
| IA4a                              | Fallow                              | 0                       | 389                      | 1,114          | 872            | 0              | 2,375          |
| IA4b                              | Idle Overgrown                      | 14                      | 1,238                    | 5,924          | 1,489          | 0              | 8,665          |
| IIA1a                             | Pasture (surf. & sub.)              | 2,181                   | 2,206                    | 6,082          | 753            | 0              | 11,222         |
| IIA1b                             | Grass Hay (surf. & sub.)            | 182                     | 0                        | 4              | 40             | 0              | 226            |
|                                   | <b>Subtotal</b>                     | <b>13,224</b>           | <b>27,284</b>            | <b>148,162</b> | <b>19,642</b>  | <b>1,027</b>   | <b>209,339</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                         |                          |                |                |                |                |
| IIA2a                             | Sub. Irr. Pasture                   | 862                     | 931                      | 973            | 65             | 0              | 2,831          |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                       | 0                        | 0              | 36             | 0              | 36             |
|                                   | <b>Subtotal</b>                     | <b>862</b>              | <b>931</b>               | <b>973</b>     | <b>101</b>     | <b>0</b>       | <b>2,867</b>   |
| <b>Total Irrigated Croplands</b>  |                                     | <b>14,086</b>           | <b>28,215</b>            | <b>149,135</b> | <b>19,743</b>  | <b>1,027</b>   | <b>212,206</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                         |                          |                |                |                |                |
| IIB                               | Cattail/Bullrush Aspect             | 0                       | 0                        | 109            | 1,652          | 0              | 1,761          |
| IIB-E                             | Wet/Vegetation Asp.                 | 0                       | 71                       | 0              | 0              | 0              | 71             |
| IIC                               | Wet Flats                           | 0                       | 151                      | 0              | 710            | 0              | 861            |
| IIE                               | Riparian                            | 957                     | 932                      | 20,274         | 6,199          | 2,442          | 30,804         |
| IIF                               | Open Water                          | 1,901                   | 0                        | 3,405          | 9,484          | 1,245          | 16,035         |
| IIF2                              | Reservoirs                          | 14,513                  | 1,906                    | 16,187         | 597            | 16             | 33,219         |
| IIF3                              | Ponds & Lakes                       | 2,218                   | 736                      | 6,399          | 1,668          | 79             | 11,100         |
| IIF4a                             | Temporary Flooded                   | 56                      | 5                        | 0              | 0              | 0              | 61             |
| IIF4b                             | Sewage Lagoon                       | 55                      | 236                      | 246            | 0              | 0              | 537            |
| IIF4c                             | Evaporation Pond                    | 0                       | 0                        | 4              | 0              | 0              | 4              |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>19,700</b>           | <b>4,037</b>             | <b>46,624</b>  | <b>20,310</b>  | <b>3,782</b>   | <b>94,453</b>  |
| <b>Residential/Industrial</b>     |                                     |                         |                          |                |                |                |                |
| VA                                | Farmsteads                          | 306                     | 1,006                    | 3,054          | 380            | 3              | 4,749          |
| VB                                | Residential                         | 477                     | 4,674                    | 4,776          | 17             | 1              | 9,945          |
| VB3                               | Open Spaces                         | 202                     | 359                      | 310            | 11             | 0              | 882            |
| VC                                | Commercial/Industrial               | 55                      | 553                      | 1,951          | 34             | 0              | 2,593          |
|                                   | <b>Total Residential/Industrial</b> | <b>1,040</b>            | <b>6,592</b>             | <b>10,091</b>  | <b>442</b>     | <b>4</b>       | <b>18,169</b>  |
| <b>Total Land Use/Land Cover</b>  |                                     | <b>34,826</b>           | <b>38,844</b>            | <b>205,850</b> | <b>40,495</b>  | <b>4,813</b>   | <b>324,828</b> |

**TABLE 26**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE UINTAH BASIN**  
**(1992 Data - Units in Acres)**

| Code                              | Cover                               | Carbon<br>County | Dagget<br>County | Emery<br>County | Duchesne<br>County | Grand<br>County | Summit<br>County | Uintah<br>County | Utah<br>County | Wasatch<br>County | Basin<br>Total |
|-----------------------------------|-------------------------------------|------------------|------------------|-----------------|--------------------|-----------------|------------------|------------------|----------------|-------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                  |                  |                 |                    |                 |                  |                  |                |                   |                |
| IA1a                              | Fruit                               | 0                | 0                | 0               | 3                  | 0               | 0                | 30               | 0              | 0                 | 33             |
| IA1e                              | Other Horticulture                  | 0                | 0                | 0               | 0                  | 0               | 0                | 0                | 0              | 0                 | 0              |
| IA2a                              | Grain                               | 0                | 7                | 0               | 6,583              | 0               | 0                | 3,356            | 0              | 54                | 10,000         |
| IA2a1                             | Corn                                | 5                | 0                | 0               | 2,550              | 0               | 0                | 3,019            | 0              | 0                 | 5,574          |
| IA2b                              | Vegetables                          | 0                | 0                | 0               | 0                  | 0               | 0                | 0                | 0              | 0                 | 0              |
| IA2b1                             | Potatoes                            | 0                | 0                | 0               | 7                  | 0               | 0                | 2                | 0              | 0                 | 9              |
| IA2b2                             | Onions                              | 0                | 0                | 0               | 0                  | 0               | 0                | 0                | 0              | 0                 | 0              |
| IA2b3                             | Beans                               | 0                | 0                | 0               | 0                  | 0               | 0                | 0                | 0              | 0                 | 0              |
| IA2c                              | Other Row Crops                     | 0                | 0                | 0               | 12                 | 0               | 0                | 0                | 0              | 0                 | 12             |
| IA3a                              | Alfalfa                             | 248              | 2,318            | 31              | 28,106             | 0               | 1                | 31,011           | 0              | 289               | 62,004         |
| IA3b                              | Grass Hay                           | 4                | 4,526            | 0               | 18,852             | 0               | 334              | 6,864            | 0              | 687               | 31,267         |
| IA3c                              | Grass/Turf                          | 0                | 0                | 0               | 5                  | 0               | 0                | 0                | 0              | 0                 | 5              |
| IA3d                              | Pasture                             | 187              | 2,705            | 77              | 44,827             | 0               | 739              | 28,908           | 0              | 504               | 77,947         |
| IA4a                              | Fallow                              | 20               | 0                | 32              | 621                | 0               | 0                | 1,626            | 0              | 76                | 2,375          |
| IA4b                              | Idle Overgrown                      | 9                | 14               | 64              | 4,206              | 0               | 0                | 4,347            | 0              | 25                | 8,665          |
| IIA1a                             | Pasture (surf. & sub.)              | 0                | 843              | 0               | 4,092              | 0               | 1,339            | 4,742            | 0              | 206               | 11,222         |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0                | 181              | 0               | 0                  | 0               | 0                | 45               | 0              | 0                 | 226            |
|                                   | <b>Subtotal</b>                     | <b>473</b>       | <b>10,594</b>    | <b>204</b>      | <b>109,864</b>     | <b>0</b>        | <b>2,413</b>     | <b>83,950</b>    | <b>0</b>       | <b>1,841</b>      | <b>209,339</b> |
| <b>Sub-Irrigated Cropland</b>     |                                     |                  |                  |                 |                    |                 |                  |                  |                |                   |                |
| IIA2a                             | Sub. Irr. Pasture                   | 0                | 758              | 0               | 39                 | 0               | 62               | 1,970            | 0              | 2                 | 2,831          |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                | 0                | 0               | 36                 | 0               | 0                | 0                | 0              | 0                 | 36             |
|                                   | <b>Subtotal</b>                     | <b>0</b>         | <b>758</b>       | <b>0</b>        | <b>75</b>          | <b>0</b>        | <b>62</b>        | <b>1,970</b>     | <b>0</b>       | <b>2</b>          | <b>2,867</b>   |
|                                   | <b>Total Irrigated Croplands</b>    | <b>473</b>       | <b>11,352</b>    | <b>204</b>      | <b>109,939</b>     | <b>0</b>        | <b>2,475</b>     | <b>85,920</b>    | <b>0</b>       | <b>1,843</b>      | <b>212,206</b> |
| <b>Wet/Open Water Areas</b>       |                                     |                  |                  |                 |                    |                 |                  |                  |                |                   |                |
| IIB                               | Cattail/Bullrush Aspect             | 0                | 0                | 0               | 22                 | 0               | 0                | 1,739            | 0              | 0                 | 1,761          |
| IIB-E                             | Wet/Vegetation Asp.                 | 0                | 0                | 0               | 0                  | 0               | 0                | 71               | 0              | 0                 | 71             |
| IIC                               | Wet Flats                           | 0                | 0                | 0               | 15                 | 0               | 0                | 846              | 0              | 0                 | 861            |
| IIE                               | Riparian                            | 376              | 358              | 83              | 12,408             | 0               | 483              | 15,750           | 0              | 1,346             | 30,804         |
| IIF                               | Open Water                          | 666              | 1,099            | 329             | 17                 | 636             | 0                | 9,899            | 0              | 3,389             | 16,035         |
| IIF2                              | Reservoirs                          | 0                | 14,375           | 7               | 2,122              | 24              | 106              | 3,730            | 0              | 12,855            | 33,219         |
| IIF3                              | Ponds & Lakes                       | 0                | 645              | 0               | 6,070              | 0               | 1,570            | 2,652            | 0              | 163               | 11,100         |
| IIF4a                             | Temporary Flooded                   | 0                | 55               | 0               | 0                  | 0               | 0                | 6                | 0              | 0                 | 61             |
| IIF4b                             | Sewage Lagoon                       | 0                | 55               | 0               | 86                 | 0               | 0                | 396              | 0              | 0                 | 537            |
| IIF4c                             | Evaporation Pond                    | 0                | 0                | 0               | 4                  | 0               | 0                | 0                | 0              | 0                 | 4              |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>1,042</b>     | <b>16,587</b>    | <b>419</b>      | <b>20,744</b>      | <b>660</b>      | <b>2,159</b>     | <b>35,089</b>    | <b>0</b>       | <b>17,753</b>     | <b>94,453</b>  |
| <b>Residential/Industrial</b>     |                                     |                  |                  |                 |                    |                 |                  |                  |                |                   |                |
| VA                                | Farmsteads                          | 8                | 276              | 5               | 2,259              | 0               | 16               | 2,157            | 0              | 28                | 4,749          |
| VB                                | Residential                         | 0                | 477              | 0               | 3,308              | 0               | 0                | 6,125            | 0              | 35                | 9,945          |
| VB3                               | Open Spaces                         | 0                | 202              | 0               | 247                | 0               | 0                | 424              | 0              | 9                 | 882            |
| VC                                | Commercial/Industrial               | 0                | 55               | 0               | 1,479              | 0               | 0                | 1,047            | 0              | 12                | 2,593          |
|                                   | <b>Total Residential/Industrial</b> | <b>8</b>         | <b>1,010</b>     | <b>5</b>        | <b>7,293</b>       | <b>0</b>        | <b>16</b>        | <b>9,753</b>     | <b>0</b>       | <b>84</b>         | <b>18,169</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>1,523</b>     | <b>28,949</b>    | <b>628</b>      | <b>137,976</b>     | <b>660</b>      | <b>4,650</b>     | <b>130,762</b>   | <b>0</b>       | <b>19,680</b>     | <b>324,828</b> |

## References

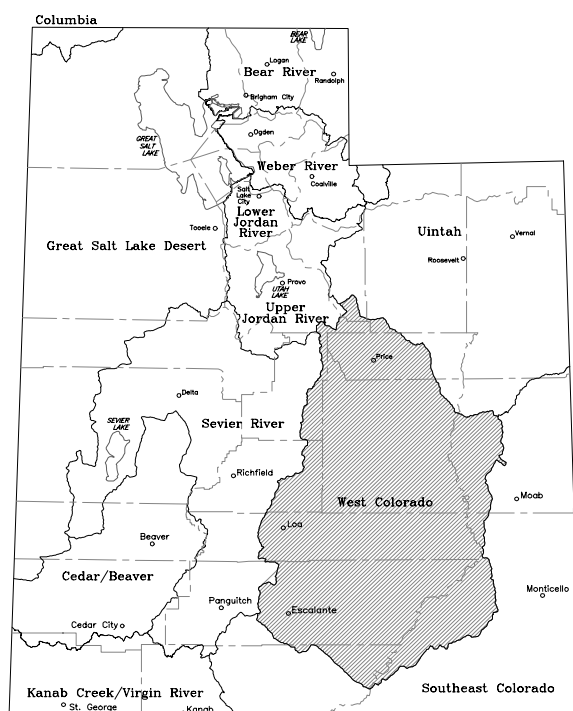
1. *Atlas of Utah*, Weber State College, 1981.
2. *Controlled 35mm Aerial Photography for the Uinta Basin Water-Related Land Use Inventory - Final Report*, Wojcik Technical Services, July 1992.
3. *Hydrologic Inventory of the Uintah Study Unit*, Lloyd H. Austin and Gaylord V. Skogerboe, March 1970.
4. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
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## WEST COLORADO RIVER BASIN

### Basin Description

The West Colorado Basin covers 15,411 square miles of the southeastern portion of Utah. The boundary follows a clockwise path containing the Roan Cliffs followed by a south-trending line toward Elk Ridge, the Clay Hills, the Straight Cliffs of the Kaiparowits Plateau, the Aquarius Plateau, the Awapa Plateau, and finally the Wasatch Plateau.

The basin approximately includes the area lying between 37°07'30" to 39°52'30" latitude, and 110°45' to 112°00' longitude. The basin spans all or part of 12 counties: Carbon, Duchesne, Emery, Garfield, Grand, Kane, San Juan, Sanpete, Sevier, Utah, Wasatch and Wayne. The basin's six subareas are Price, San Rafael, Dirty Devil, Escalante, Lower Green and Lake Powell. Figure 38 locates the West Colorado Basin within Utah's borders.



**Figure 38.** Location of the West Colorado River Basin.

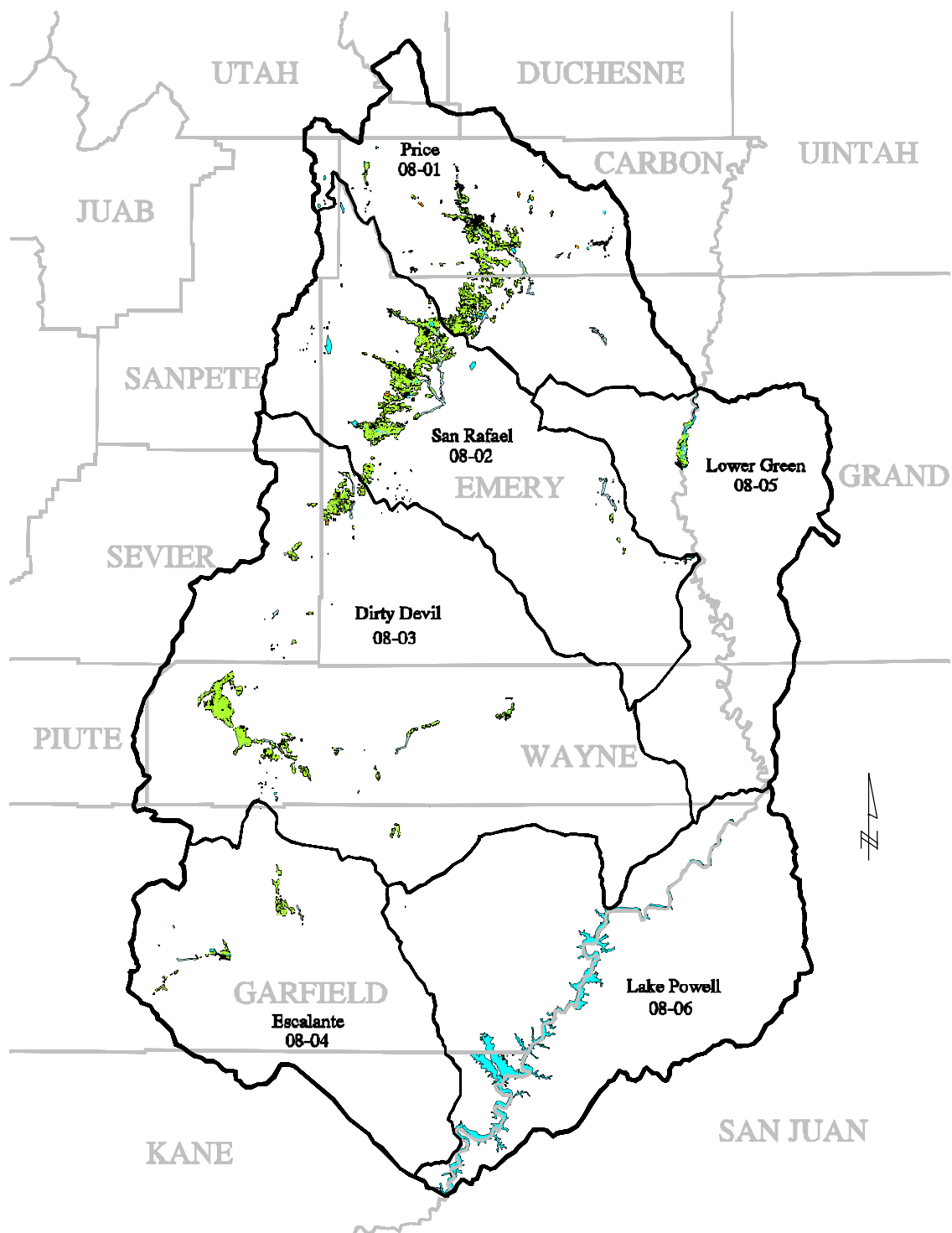
The West Colorado Basin contains a wide variety of valleys and mountains. Elevations begin less than 4,000 feet above mean sea level at the southern tip of the basin and gradually increase throughout several of the valleys into the higher mountains and plateaus of the basin. Mt. Ellen, located in the Henry Mountains, stands 11,522 feet above mean sea level. Similarly, the Aquarius Plateau located approximately 35 miles to the west, peaks at Boulder Mountain with an elevation of 11,360 feet above mean sea level. Notable features of the basin include Capitol Reef National Park, portions of Grand Staircase-Escalante National Monument and Glen Canyon National Recreation Area.

The climate varies widely with the physiography of the basin. Average precipitation ranges from less than 6 inches per year in the San Rafael Desert to more than 30 inches in the Henry Mountains. Normal January temperatures range from near zero degrees Fahrenheit to the mid-40s while normal July temperatures range from the low 50s to more than 96 degrees Fahrenheit. Typically, the basin experiences short, mildly warm summers and long, cold winters at the higher elevations. At lower elevations, the basin sees hot and dry summers and mild winters.

Figure 39 illustrates the water-related land use of the basin and indicates that agriculture within the basin occurs mainly in Castle Valley, which includes areas in and around Helper, Price, Castle Dale, Huntington and Emery. Additionally, considerable acreage is regularly farmed in Rabbit Valley near Loa. The figure also depicts the hydrologic study areas and the county lines within the basin.

### Data Collection

The division conducted water-related land use inventories in the summer of 1991. The



**Figure 39. Mapped Water-Related Land Use of the West Colorado River Basin.**

climate that year was relatively normal. Therefore, the division believes that the 1991 data are representative of normal conditions.

## Data Summary

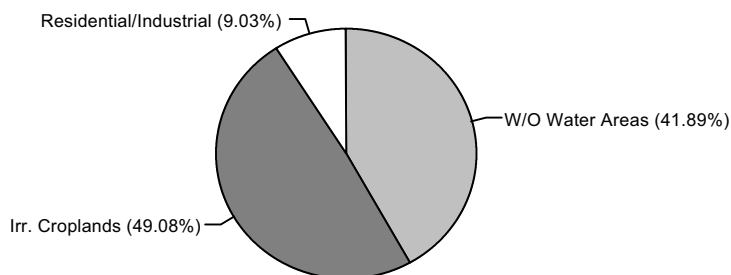
The division inventoried nearly 200,000 acres of land in Utah's portion of the West Colorado Basin. This represents about two percent of the entire Basin. Areas not inventoried are mainly desert, rangeland and national forests. Of the inventoried acres, 96,428 were irrigated lands (including land that was fallow, idle or sub-irrigated), 82,311 were wet/open water areas, and 17,751 were residential or industrial areas (including farmsteads and rural housing). Table 27 summarizes the division's 1967-68 and 1991 land use data.

| Table 27<br>West Colorado River Basin Land Use Summary<br>(Acres) |           |        |
|---|-----------|--------|
| Land Use  | 1967-1968 | 1991   |
| Irrigated Croplands   | 101,243   | 96,428 |
| Wet/Open Water Areas  | 30,934    | 82,311 |
| Residential/Industrial Areas                                      | 12,871    | 17,751 |

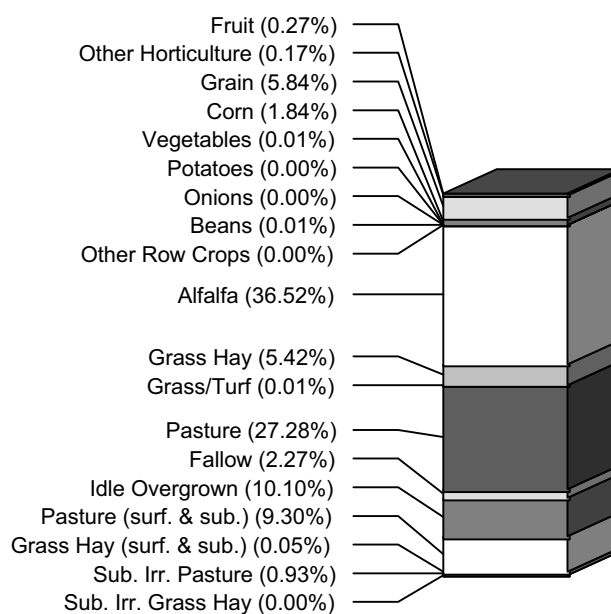
The division has further classified the water-related land use within the basin. Figure 40 delineates the three categories of water-related land use listed above by percentage.

Additionally, Figure 41 represents data from the category of surface irrigated cropland. The data are arranged into 19 different subcategories.

Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Tables 28 and 29. Table 28 contains the data collected by study area while Table 29 contains data collected by county.



**Figure 40.** Delineation of Water-Related Land Use Categories within the West Colorado River Basin (1991 Data).



**Figure 41.** Breakdown of Surface Irrigated Cropland within the West Colorado River Basin (1991 Data).

**TABLE 28**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE WEST COLORADO BASIN**  
**(1991 Data - Units in Acres)**

| Code                              | Cover                               | Price<br>08-01 | San Rafael<br>08-02 | Dirty Devil<br>08-03 | Escalante<br>08-04 | Lower<br>Green<br>08-05 | Lake<br>Powell<br>08-06 | Basin<br>Total |
|-----------------------------------|-------------------------------------|----------------|---------------------|----------------------|--------------------|-------------------------|-------------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                |                     |                      |                    |                         |                         |                |
| IA1a                              | Fruit                               | 96             | 76                  | 74                   | 15                 | 0                       | 0                       | 261            |
| IA1e                              | Other Horticulture                  | 0              | 0                   | 0                    | 11                 | 149                     | 0                       | 160            |
| IA2a                              | Grain                               | 688            | 554                 | 3,974                | 343                | 71                      | 0                       | 5,630          |
| IA2a1                             | Corn                                | 541            | 538                 | 95                   | 0                  | 596                     | 0                       | 1,770          |
| IA2b                              | Vegetables                          | 0              | 0                   | 11                   | 0                  | 0                       | 0                       | 11             |
| IA2b1                             | Potatoes                            | 0              | 0                   | 0                    | 0                  | 0                       | 0                       | 0              |
| IA2b2                             | Onions                              | 0              | 0                   | 0                    | 0                  | 0                       | 0                       | 0              |
| IA2b3                             | Beans                               | 0              | 0                   | 8                    | 0                  | 0                       | 0                       | 8              |
| IA2c                              | Other Row Crops                     | 0              | 0                   | 0                    | 0                  | 0                       | 0                       | 0              |
| IA3a                              | Alfalfa                             | 8,958          | 10,406              | 12,034               | 2,370              | 1,443                   | 0                       | 35,211         |
| IA3b                              | Grass Hay                           | 2,511          | 1,113               | 1,038                | 501                | 62                      | 0                       | 5,225          |
| IA3c                              | Grass/Turf                          | 3              | 0                   | 0                    | 0                  | 10                      | 0                       | 13             |
| IA3d                              | Pasture                             | 7,372          | 10,055              | 6,254                | 2,143              | 477                     | 0                       | 26,301         |
| IA4a                              | Fallow                              | 695            | 544                 | 451                  | 145                | 354                     | 0                       | 2,189          |
| IA4b                              | Idle Overgrown                      | 3,675          | 4,770               | 789                  | 329                | 181                     | 0                       | 9,744          |
| IIA1a                             | Pasture (surf. & sub.)              | 1,508          | 2,086               | 4,671                | 686                | 13                      | 0                       | 8,964          |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0              | 34                  | 15                   | 0                  | 0                       | 0                       | 49             |
|                                   | <b>Subtotal</b>                     | <b>26,047</b>  | <b>30,176</b>       | <b>29,414</b>        | <b>6,543</b>       | <b>3,356</b>            | <b>0</b>                | <b>95,536</b>  |
| <b>Sub-Irrigated Cropland</b>     |                                     |                |                     |                      |                    |                         |                         |                |
| IIA2a                             | Sub. Irr. Pasture                   | 426            | 102                 | 103                  | 207                | 54                      | 0                       | 892            |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0              | 0                   | 0                    | 0                  | 0                       | 0                       | 0              |
|                                   | <b>Subtotal</b>                     | <b>426</b>     | <b>102</b>          | <b>103</b>           | <b>207</b>         | <b>54</b>               | <b>0</b>                | <b>892</b>     |
|                                   | <b>Total Irrigated Croplands</b>    | <b>26,473</b>  | <b>30,278</b>       | <b>29,517</b>        | <b>6,750</b>       | <b>3,410</b>            | <b>0</b>                | <b>96,428</b>  |
| <b>Wet/Open Water Areas</b>       |                                     |                |                     |                      |                    |                         |                         |                |
| IIB                               | Cattail/Bullrush Aspect             | 49             | 18                  | 68                   | 0                  | 0                       | 0                       | 135            |
| IIB-E                             | Wet/Vegetation Asp.                 | 123            | 0                   | 576                  | 0                  | 0                       | 0                       | 699            |
| IIC                               | Wet Flats                           | 0              | 0                   | 53                   | 0                  | 0                       | 0                       | 53             |
| IIE                               | Riparian                            | 3,044          | 5,552               | 2,318                | 606                | 1,254                   | 6                       | 12,780         |
| IIF                               | Open Water                          | 283            | 510                 | 2,888                | 42                 | 2,246                   | 3                       | 5,972          |
| IIF2                              | Reservoirs                          | 3,155          | 2,011               | 1,356                | 3,487              | 53                      | 52,006                  | 62,068         |
| IIF4a                             | Temporary Flooded                   | 0              | 0                   | 0                    | 9                  | 0                       | 0                       | 9              |
| IIF4b                             | Sewage Lagoon                       | 65             | 131                 | 15                   | 23                 | 36                      | 26                      | 296            |
| IIF4c                             | Evaporation Pond                    | 299            | 0                   | 0                    | 0                  | 0                       | 0                       | 299            |
| IIF5                              | Salt Water                          | 0              | 0                   | 0                    | 0                  | 0                       | 0                       | 0              |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>7,018</b>   | <b>8,222</b>        | <b>7,274</b>         | <b>4,167</b>       | <b>3,589</b>            | <b>52,041</b>           | <b>82,311</b>  |
| <b>Residential/Industrial</b>     |                                     |                |                     |                      |                    |                         |                         |                |
| VA                                | Farmsteads                          | 1,193          | 741                 | 757                  | 190                | 212                     | 0                       | 3,093          |
| VB                                | Residential                         | 5,471          | 2,352               | 2,008                | 512                | 348                     | 46                      | 10,737         |
| VB3                               | Open Spaces                         | 324            | 398                 | 80                   | 42                 | 66                      | 22                      | 932            |
| VC                                | Commercial/Industrial               | 1,738          | 710                 | 356                  | 76                 | 74                      | 35                      | 2,989          |
|                                   | <b>Total Residential/Industrial</b> | <b>8,726</b>   | <b>4,201</b>        | <b>3,201</b>         | <b>820</b>         | <b>700</b>              | <b>103</b>              | <b>17,751</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>42,217</b>  | <b>42,701</b>       | <b>39,992</b>        | <b>11,737</b>      | <b>7,699</b>            | <b>52,144</b>           | <b>196,490</b> |

**TABLE 29**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE WEST COLORADO BASIN**  
(1991 Data - Units in Acres)

| Code                              | Cover                               | Carbon<br>County | Duchesne<br>County | Emery<br>County | Garfield<br>County | Grand<br>County | Kane<br>County | San Juan<br>County | San Pete<br>County | Sevier<br>County | Utah<br>County | Wasatch<br>County | Wayne<br>County | Basin<br>Total |
|-----------------------------------|-------------------------------------|------------------|--------------------|-----------------|--------------------|-----------------|----------------|--------------------|--------------------|------------------|----------------|-------------------|-----------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                  |                    |                 |                    |                 |                |                    |                    |                  |                |                   |                 |                |
| IA1a                              | Fruit                               | 96               | 0                  | 76              | 15                 | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 74              | 261            |
| IA1e                              | Other Horticulture                  | 0                | 0                  | 117             | 11                 | 32              | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 160            |
| IA2a                              | Grain                               | 299              | 0                  | 1,229           | 343                | 47              | 0              | 0                  | 0                  | 70               | 0              | 0                 | 3,642           | 5,630          |
| IA2a1                             | Corn                                | 254              | 0                  | 1,299           | 0                  | 145             | 0              | 0                  | 0                  | 0                | 0              | 0                 | 72              | 1,770          |
| IA2b                              | Vegetables                          | 0                | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 11              | 11             |
| IA2b1                             | Potatoes                            | 0                | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 0              |
| IA2b2                             | Onions                              | 0                | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 0              |
| IA2b3                             | Beans                               | 0                | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 8               | 8              |
| IA2c                              | Other Row Crops                     | 0                | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 0              |
| IA3a                              | Alfalfa                             | 5,645            | 0                  | 16,731          | 2,370              | 534             | 0              | 0                  | 0                  | 715              | 0              | 0                 | 9,216           | 35,211         |
| IA3b                              | Grass Hay                           | 453              | 0                  | 3,727           | 500                | 61              | 0              | 0                  | 0                  | 0                | 0              | 0                 | 484             | 5,225          |
| IA3c                              | Grass/Turf                          | 0                | 0                  | 3               | 0                  | 10              | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 13             |
| IA3d                              | Pasture                             | 3,839            | 0                  | 16,921          | 2,143              | 218             | 0              | 0                  | 0                  | 546              | 0              | 0                 | 2,634           | 26,301         |
| IA4a                              | Fallow                              | 382              | 0                  | 1,059           | 145                | 275             | 0              | 0                  | 0                  | 0                | 0              | 0                 | 328             | 2,189          |
| IA4b                              | Idle Overgrown                      | 2,239            | 0                  | 6,635           | 329                | 100             | 0              | 0                  | 0                  | 240              | 0              | 0                 | 201             | 9,744          |
| IIA1a                             | Pasture (surf. & sub.)              | 387              | 0                  | 3,208           | 686                | 12              | 0              | 0                  | 0                  | 0                | 0              | 0                 | 4,671           | 8,964          |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0                | 0                  | 34              | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 15              | 49             |
|                                   | <b>Subtotal</b>                     | <b>13,594</b>    | <b>0</b>           | <b>51,039</b>   | <b>6,542</b>       | <b>1,434</b>    | <b>0</b>       | <b>0</b>           | <b>0</b>           | <b>1,571</b>     | <b>0</b>       | <b>0</b>          | <b>21,356</b>   | <b>95,536</b>  |
| <b>Sub-Irrigated Cropland</b>     |                                     |                  |                    |                 |                    |                 |                |                    |                    |                  |                |                   |                 |                |
| IIA2a                             | Sub. Irr. Pasture                   | 273              | 0                  | 270             | 207                | 39              | 0              | 0                  | 0                  | 0                | 0              | 0                 | 103             | 892            |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0                | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 0              |
|                                   | <b>Subtotal</b>                     | <b>273</b>       | <b>0</b>           | <b>270</b>      | <b>207</b>         | <b>39</b>       | <b>0</b>       | <b>0</b>           | <b>0</b>           | <b>0</b>         | <b>0</b>       | <b>0</b>          | <b>103</b>      | <b>892</b>     |
|                                   | <b>Total Irrigated Croplands</b>    | <b>13,867</b>    | <b>0</b>           | <b>51,309</b>   | <b>6,749</b>       | <b>1,473</b>    | <b>0</b>       | <b>0</b>           | <b>0</b>           | <b>1,571</b>     | <b>0</b>       | <b>0</b>          | <b>21,459</b>   | <b>96,428</b>  |
| <b>Wet/Open Water Areas</b>       |                                     |                  |                    |                 |                    |                 |                |                    |                    |                  |                |                   |                 |                |
| IIB                               | Cattail/Bullrush Aspect             | 47               | 0                  | 20              | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 68              | 135            |
| IIB-E                             | Wet/Vegetation Asp.                 | 7                | 0                  | 116             | 0                  | 0               | 0              | 0                  | 0                  | 576              | 0              | 0                 | 0               | 699            |
| IIC                               | Wet Flats                           | 0                | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 53               | 0              | 0                 | 0               | 53             |
| IIE                               | Riparian                            | 1,531            | 0                  | 8,056           | 606                | 1,074           | 6              | 0                  | 0                  | 293              | 0              | 0                 | 1,214           | 12,780         |
| IIF                               | Open Water                          | 7                | 0                  | 1,092           | 45                 | 1,807           | 0              | 0                  | 156                | 2,693            | 0              | 0                 | 172             | 5,972          |
| IIF2                              | Reservoirs                          | 2,830            | 0                  | 2,292           | 15,175             | 1               | 21,606         | 19,239             | 88                 | 720              | 35             | 0                 | 82              | 62,068         |
| IIF4a                             | Temporary Flooded                   | 0                | 0                  | 0               | 9                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 9              |
| IIF4b                             | Sewage Lagoon                       | 13               | 0                  | 199             | 23                 | 27              | 26             | 0                  | 0                  | 0                | 0              | 0                 | 8               | 296            |
| IIF4c                             | Evaporation Pond                    | 299              | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 299            |
| IIF5                              | Salt Water                          | 0                | 0                  | 0               | 0                  | 0               | 0              | 0                  | 0                  | 0                | 0              | 0                 | 0               | 0              |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>4,734</b>     | <b>0</b>           | <b>11,775</b>   | <b>15,858</b>      | <b>2,909</b>    | <b>21,638</b>  | <b>19,239</b>      | <b>244</b>         | <b>4,335</b>     | <b>35</b>      | <b>0</b>          | <b>1,544</b>    | <b>82,311</b>  |
| <b>Residential/Industrial</b>     |                                     |                  |                    |                 |                    |                 |                |                    |                    |                  |                |                   |                 |                |
| VA                                | Farmsteads                          | 834              | 0                  | 1,268           | 190                | 76              | 0              | 0                  | 0                  | 22               | 0              | 0                 | 703             | 3,093          |
| VB                                | Residential                         | 4,911            | 0                  | 3,561           | 512                | 103             | 25             | 21                 | 27                 | 283              | 16             | 0                 | 1,278           | 10,737         |
| VB3                               | Open Spaces                         | 306              | 0                  | 448             | 43                 | 38              | 0              | 22                 | 0                  | 0                | 0              | 0                 | 75              | 932            |
| VC                                | Commercial/Industrial               | 1,559            | 0                  | 946             | 76                 | 64              | 35             | 0                  | 0                  | 19               | 0              | 0                 | 290             | 2,989          |
|                                   | <b>Total Residential/Industrial</b> | <b>7,610</b>     | <b>0</b>           | <b>6,223</b>    | <b>821</b>         | <b>281</b>      | <b>60</b>      | <b>43</b>          | <b>27</b>          | <b>324</b>       | <b>16</b>      | <b>0</b>          | <b>2,346</b>    | <b>17,751</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>26,211</b>    | <b>0</b>           | <b>69,307</b>   | <b>23,428</b>      | <b>4,663</b>    | <b>21,698</b>  | <b>19,282</b>      | <b>271</b>         | <b>6,230</b>     | <b>51</b>      | <b>0</b>          | <b>25,349</b>   | <b>196,490</b> |

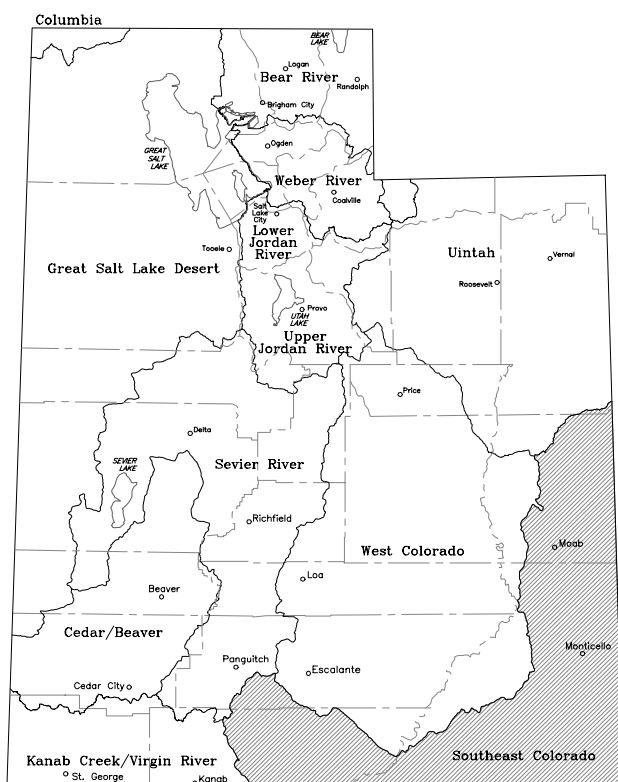
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1. *Atlas of Utah*, Weber State College, 1981.
2. *Landform Map of Utah*, Merrill K. Ridd, 1961.
3. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
4. *Water-Related Land Use Inventories, West Colorado Study Unit*, Utah Division of Water Resources, November 1993.
5. *West Colorado River Basin - Final Report for 35mm Aerial Photography*, Mapping and Analytical Photographic Services Inc., September 1990.

## SOUTHEAST COLORADO RIVER BASIN

### Basin Description

Utah's portion of the Southeast Colorado Basin covers a large area of eastern Utah. The Book Cliffs stand as the basin's northern boundary. Roughly half of the Utah/Colorado state line forms the eastern boundary of the basin while roughly two-thirds of the Utah/Arizona state line forms the basin's southern boundary. Above the confluence of the Colorado and Green rivers, the western boundary follows the drainage divide of these two river systems. Below that confluence, features such as Elk Ridge, the Clay Cliffs, the Straight Cliffs of the Kaiparowits Plateau, and the Pink Cliffs of the Paunsaugunt Plateau continue the western boundary of the basin. Figure 42 locates the Southeast Colorado River Basin with respect to the state of Utah borders.



**Figure 42.** Location of the Southeast Colorado River Basin.

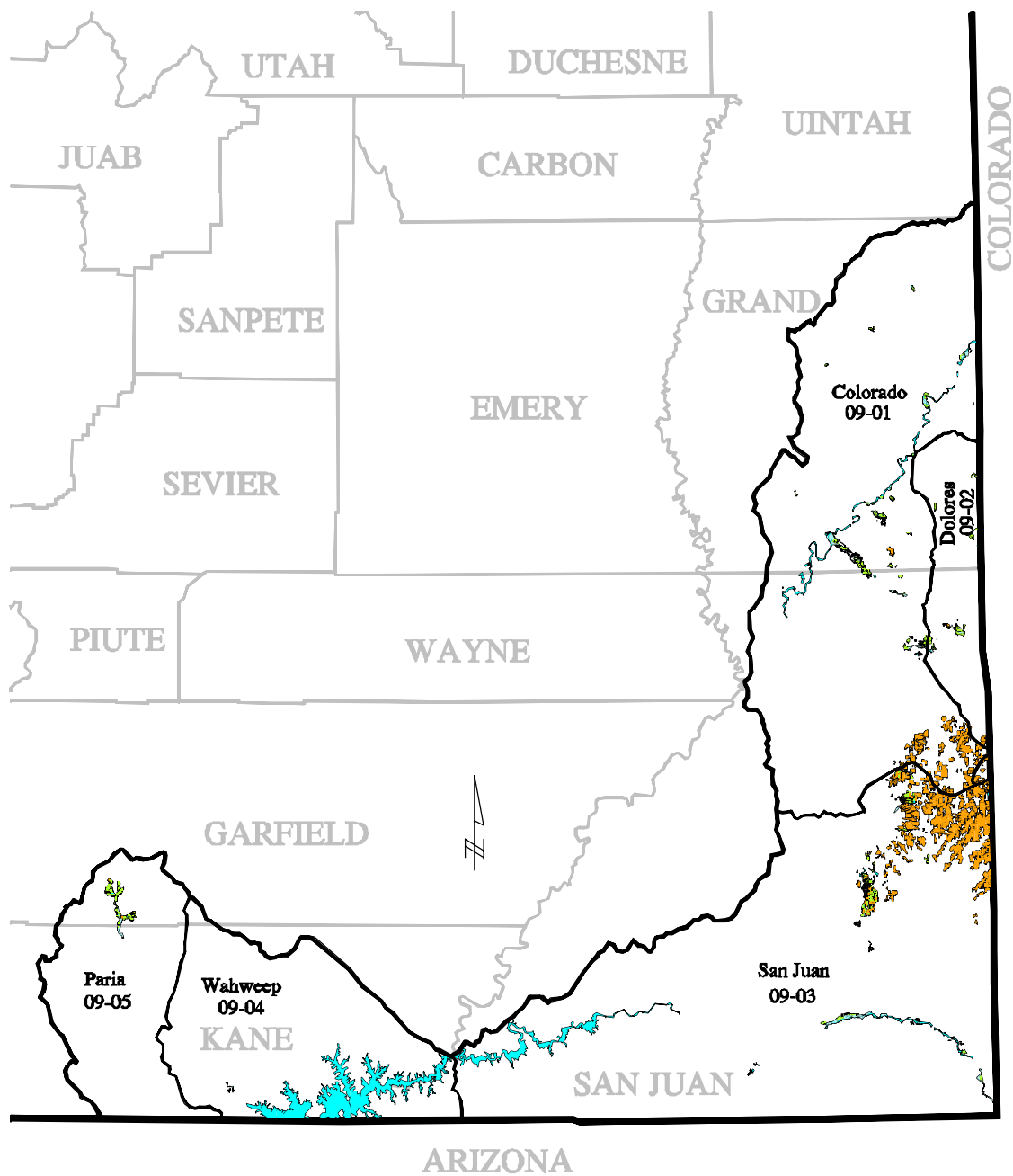
The basin spans part of four counties: Garfield, Grand, Kane and San Juan. The five subareas that form the basin are Colorado, Dolores, San Juan, Wahweep and Paria. Elevations within the basin climax at Mt. Peale in the La Sal Mountains at 12,721 feet above mean sea level. Approximately 50 miles to the southwest, Abajo Peak in the Abajo (Blue) Mountains reaches 11,360 feet. Lake Powell claims an elevation of 3,700 above mean sea level. Notable features of the basin include Arches National Park, Bryce Canyon, Glen Canyon National Recreation Area and portions of Canyonlands National Park and Grand Staircase-Escalante National Monument.

The climate varies widely with the physiography of the basin. Average precipitation ranges from less than 6 inches per year at points near the Utah/Arizona border to more than 30 inches in the La Sal and Abajo Mountains. Normal January temperatures range from less than 10 ° F to the mid-40s while normal July temperatures range from the low 50s to more than 96 ° F. Typically, the basin experiences short, mildly warm summers and long, cold winters at higher elevations. At lower elevations, the basin sees hot and dry summers and mild winters.

Figure 43 illustrates the water-related land use of the basin and indicates that nearly all of the agricultural land use occurs in and around Moab and Monticello. It also depicts the hydrologic study areas and the county lines within the basin.

### Data Collection

The Division of Water Resources conducted water-related land use inventories in the summer of 1991. That year was relatively normal and the division believes that data from 1991 on the Southeast Colorado Basin are representative of normal conditions in the field.



**Figure 43. Mapped Water-Related Land Use of the Southeast Colorado River Basin.**

## Data Summary

The division inventoried 233,346 acres of land in Utah's portion of the Southeast Colorado River Basin. This represents only about 3.4 percent of the entire Southeast Colorado Hydrologic Study Unit (approximately 6,960,990 acres). Areas not inventoried are mainly national forests and rangeland. Of the inventoried acres, 16,122 are irrigated pasture and cropland, 100,629 are wet/open water areas (including reservoirs), and 7,956 area residential/industrial areas (including farmsteads and rural housing). Dry-land agriculture is of particular significance to this area of the state. The division mapped 106,901 acres under dry-land agriculture in the Southeast Colorado River Basin. However, this reflects only the number of acres mapped, not the total number of acres that may be in this category in the basin. Non-irrigated lands away from irrigated lands are normally not mapped, and non-irrigated agricultural lands are mapped only if they fall within, or border, irrigated lands. Table 30 summarizes the division's 1990 data.

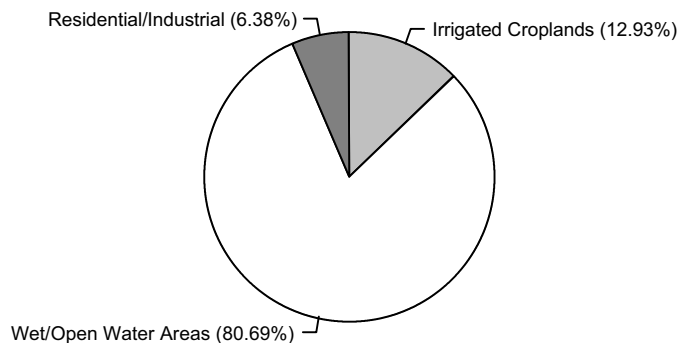
**Table 30**  
**Southeast Colorado River Basin**  
**Land Use Summary**  
(Acres)

| Land Use                     | 1990                 | 2000 <sup>1</sup> |
|------------------------------|----------------------|-------------------|
| Irrigated Croplands          | 16,122               |                   |
| Wet/Open Water Areas         | 100,629 <sup>2</sup> |                   |
| Residential/Industrial Areas | 7,956                |                   |

<sup>1</sup> Next planned inventory

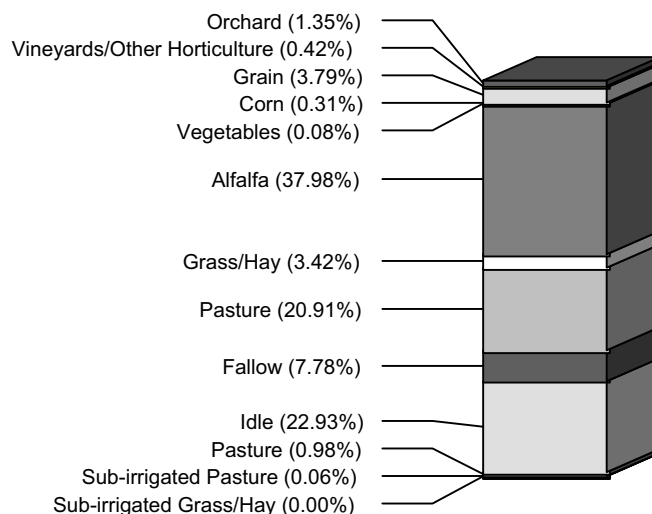
<sup>2</sup> Figure includes part of Lake Powell.

The division has further classified the water-related land use within the basin. Figure 44 delineates the above-listed categories of water-related land use by percentage.



**Figure 44.** Delineation of Water-Related Land Use Categories within the Southeast Colorado River Basin (1990 Data).

Additionally, Figure 45 represents data from the category of surface irrigated cropland. The data are arranged into 13 different subcategories.



**Figure 45.** Breakdown of Surface Irrigated Cropland within the Southeast Colorado River Basin (1990 Data).

Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Tables 31 by study area and Table 32 by county.

**TABLE 31**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE SOUTHEAST COLORADO BASIN**  
**(1990 Data - Units in Acres)**

| Code                              | Cover                               | Colorado<br>09-01 | Dolores<br>09-02 | San Juan<br>09-03 | Wahweep<br>09-04 | Paria<br>09-05 | Basin<br>Total |
|-----------------------------------|-------------------------------------|-------------------|------------------|-------------------|------------------|----------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                   |                  |                   |                  |                |                |
| IA1a                              | Orchard                             | 136               | 0                | 55                | 0                | 26             | 217            |
| IA1c                              | Vineyards/Other Horticulture        | 31                | 0                | 27                | 0                | 9              | 67             |
| IA2a                              | Grain                               | 75                | 2                | 334               | 0                | 200            | 611            |
| IA2a1                             | Corn                                | 7                 | 43               | 0                 | 0                | 0              | 50             |
| IA2b                              | Vegetables                          | 3                 | 0                | 10                | 0                | 0              | 13             |
| IA3a                              | Alfalfa                             | 2,036             | 678              | 2,021             | 0                | 1,388          | 6,123          |
| IA3b                              | Grass/Hay                           | 37                | 6                | 454               | 0                | 55             | 552            |
| IA3d                              | Pasture                             | 634               | 638              | 1,535             | 0                | 564            | 3,371          |
| IA4a                              | Fallow                              | 275               | 176              | 664               | 0                | 139            | 1,254          |
| IA4b                              | Idle                                | 1,079             | 805              | 1,400             | 0                | 413            | 3,697          |
| IIA1a                             | Pasture (Surf. & Sub.)              | 0                 | 0                | 158               | 0                | 0              | 158            |
|                                   | <b>Subtotal</b>                     | <b>4,313</b>      | <b>2,348</b>     | <b>6,658</b>      | <b>0</b>         | <b>2,794</b>   | <b>16,113</b>  |
| <b>Sub-Irrigated Cropland</b>     |                                     |                   |                  |                   |                  |                |                |
| IIA2a                             | Sub-irrigated Pasture               | 9                 | 0                | 0                 | 0                | 0              | 9              |
| IIA2b                             | Sub-irrigated Grass/Hay             | 0                 | 0                | 0                 | 0                | 0              | 0              |
|                                   | <b>Subtotal</b>                     | <b>9</b>          | <b>0</b>         | <b>0</b>          | <b>0</b>         | <b>0</b>       | <b>9</b>       |
|                                   | <b>Total Irrigated Croplands</b>    | <b>4,322</b>      | <b>2,348</b>     | <b>6,658</b>      | <b>0</b>         | <b>2,794</b>   | <b>16,122</b>  |
| <b>Wet/Open Water Areas</b>       |                                     |                   |                  |                   |                  |                |                |
| IIC                               | Wet Flats                           | 379               | 13               | 1,207             | 0                | 113            | 1,712          |
| IIE                               | Riparian Areas                      | 2,845             | 236              | 2,269             | 23               | 601            | 5,974          |
| IIF                               | Open Water                          | 297               | 84               | 396               | 10               | 16             | 803            |
| IIF1                              | Streams                             | 4,229             | 4                | 1,426             | 0                | 0              | 5,659          |
| IIF2                              | Reservoirs                          | 0                 | 0                | 18,293            | 67,362           | 42             | 85,697         |
| IIF4b                             | Sewage Lagoon                       | 0                 | 0                | 109               | 0                | 0              | 109            |
| IIF4c                             | Evaporation Ponds                   | 587               | 0                | 88                | 0                | 0              | 675            |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>8,337</b>      | <b>337</b>       | <b>23,788</b>     | <b>67,395</b>    | <b>772</b>     | <b>100,629</b> |
| <b>Residential/Industrial</b>     |                                     |                   |                  |                   |                  |                |                |
| VA1                               | Bldgs/Homes                         | 115               | 0                | 309               | 0                | 0              | 424            |
| VA2                               | Open Spaces                         | 49                | 11               | 112               | 0                | 25             | 197            |
| VB                                | Residential                         | 3,102             | 167              | 2,203             | 64               | 404            | 5,940          |
| VB3                               | Open Space                          | 292               | 0                | 157               | 0                | 15             | 464            |
| VC                                | Commercial/Industrial               | 23                | 22               | 426               | 0                | 0              | 471            |
| VC1                               | Commercial                          | 10                | 0                | 83                | 14               | 0              | 107            |
| VC2                               | Industrial                          | 275               | 0                | 78                | 0                | 0              | 353            |
|                                   | <b>Total Residential/Industrial</b> | <b>3,866</b>      | <b>200</b>       | <b>3,368</b>      | <b>78</b>        | <b>444</b>     | <b>7,956</b>   |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>16,525</b>     | <b>2,885</b>     | <b>33,814</b>     | <b>67,473</b>    | <b>4,010</b>   | <b>124,707</b> |

**TABLE 32**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE SOUTHEAST COLORADO BASIN**  
**(1990 Data - Units in Acres)**

| Code                              | Cover                               | San Juan<br>County | Kane<br>County | Grand<br>County | Garfield<br>County | Basin<br>Total |
|-----------------------------------|-------------------------------------|--------------------|----------------|-----------------|--------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                    |                |                 |                    |                |
| IA1a                              | Orchard                             | 55                 | 0              | 136             | 26                 | 217            |
| IA1c                              | Vineyards/Other Horticulture        | 27                 | 0              | 31              | 9                  | 67             |
| IA2a                              | Grain                               | 378                | 20             | 33              | 180                | 611            |
| IA2a1                             | Corn                                | 0                  | 0              | 50              | 0                  | 50             |
| IA2b                              | Vegetables                          | 10                 | 0              | 3               | 0                  | 13             |
| IA3a                              | Alfalfa                             | 3,079              | 33             | 1,657           | 1,354              | 6,123          |
| IA3b                              | Grass/Hay                           | 454                | 0              | 43              | 55                 | 552            |
| IA3d                              | Pasture                             | 1,976              | 0              | 831             | 564                | 3,371          |
| IA4a                              | Fallow                              | 912                | 0              | 203             | 139                | 1,254          |
| IA4b                              | Idle                                | 2,412              | 0              | 872             | 413                | 3,697          |
| IIA1a                             | Pasture (Surf. & Sub.)              | 158                | 0              | 0               | 0                  | 158            |
|                                   | <b>Subtotal</b>                     | <b>9,461</b>       | <b>53</b>      | <b>3,859</b>    | <b>2,740</b>       | <b>16,113</b>  |
| <b>Sub-Irrigated Cropland</b>     |                                     |                    |                |                 |                    |                |
| IIA2a                             | Sub-irrigated Pasture               | 9                  | 0              | 0               | 0                  | 9              |
| IIA2b                             | Sub-irrigated Grass/Hay             | 0                  | 0              | 0               | 0                  | 0              |
|                                   | <b>Subtotal</b>                     | <b>9</b>           | <b>0</b>       | <b>0</b>        | <b>0</b>           | <b>9</b>       |
|                                   | <b>Total Irrigated Croplands</b>    | <b>9,470</b>       | <b>53</b>      | <b>3,859</b>    | <b>2,740</b>       | <b>16,122</b>  |
| <b>Wet/Open Water Areas</b>       |                                     |                    |                |                 |                    |                |
| IIC                               | Wet Flats                           | 1,269              | 113            | 330             | 0                  | 1,712          |
| IIE                               | Riparian Areas                      | 2,938              | 182            | 2,412           | 442                | 5,974          |
| IIF                               | Open Water                          | 613                | 10             | 164             | 16                 | 803            |
| IIF1                              | Streams                             | 2,362              | 0              | 3,297           | 0                  | 5,659          |
| IIF2                              | Reservoirs                          | 32,357             | 53,298         | 0               | 42                 | 85,697         |
| IIF4b                             | Sewage Lagoon                       | 109                | 0              | 0               | 0                  | 109            |
| IIF4c                             | Evaporation Ponds                   | 589                | 0              | 86              | 0                  | 675            |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>40,237</b>      | <b>53,603</b>  | <b>6,289</b>    | <b>500</b>         | <b>100,629</b> |
| <b>Residential/Industrial</b>     |                                     |                    |                |                 |                    |                |
| VA1                               | Bldgs/Homes                         | 372                | 0              | 52              | 0                  | 424            |
| VA2                               | Open Spaces                         | 115                | 0              | 57              | 25                 | 197            |
| VB                                | Residential                         | 2,550              | 65             | 2,921           | 404                | 5,940          |
| VB3                               | Open Space                          | 157                | 0              | 292             | 15                 | 464            |
| VC                                | Commerical/Industrial               | 460                | 0              | 11              | 0                  | 471            |
| VC1                               | Commercial                          | 85                 | 14             | 8               | 0                  | 107            |
| VC2                               | Industrial                          | 78                 | 0              | 275             | 0                  | 353            |
|                                   | <b>Total Residential/Industrial</b> | <b>3,817</b>       | <b>79</b>      | <b>3,616</b>    | <b>444</b>         | <b>7,956</b>   |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>53,524</b>      | <b>53,735</b>  | <b>13,764</b>   | <b>3,684</b>       | <b>124,707</b> |

## References

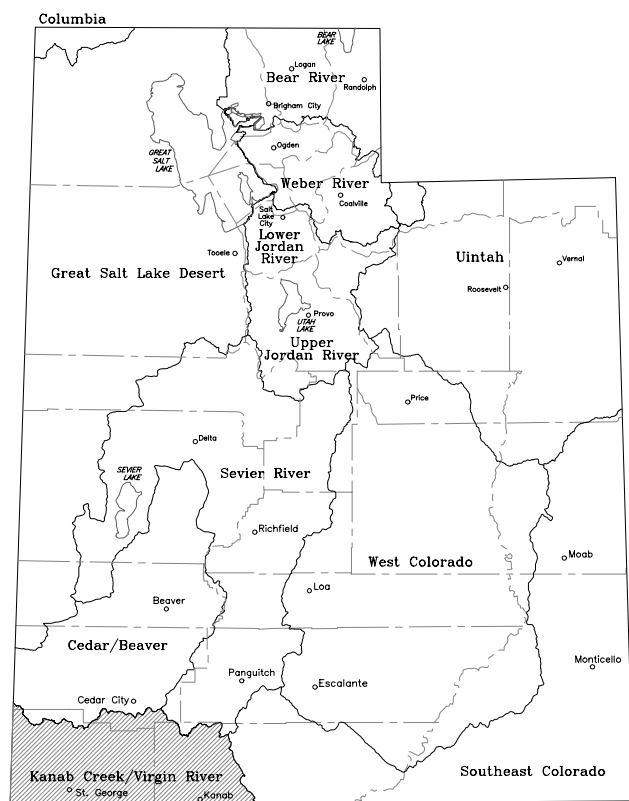
1. *Atlas of Utah*, Weber State College, 1981.
2. *Hydrologic Inventory of Colorado, Dolores, and San Juan Study Units*, Utah Division of Water Resources, September 1987.
3. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
4. *Landform Map of Utah*, Merril K. Ridd, 1961.
5. *Southeast Colorado River Basin - Final Report for 35mm Aerial Photography*, Mapping and Analytical Photographic Services Inc., September 1990.
6. *Water-Related Land Use Inventories, Southeast Colorado Basin*, Utah Division of Water Resources, February 1992.

## KANAB CREEK/VIRGIN RIVER BASIN

### Basin Description

The Utah portion of the Kanab Creek/Virgin River Basin includes approximately 3,500 square miles of land in the southwest corner of the state. Utah's portion of the basin extends from the Utah/Arizona state line on the south to the Bull Valley and Harmony Mountains to the north. On the west, the study unit extends from the Utah/Nevada state line east to the divide between Johnson Wash and Kaibab Gulch Tributaries.

The basin spans most of Washington County and part of Iron and Kane counties. The Virgin and Kanab are the two subareas that form the basin. Figure 46 locates the Kanab Creek/Virgin River Basin within Utah's borders.



**Figure 46.** Location of the Kanab Creek/Virgin River Basin.

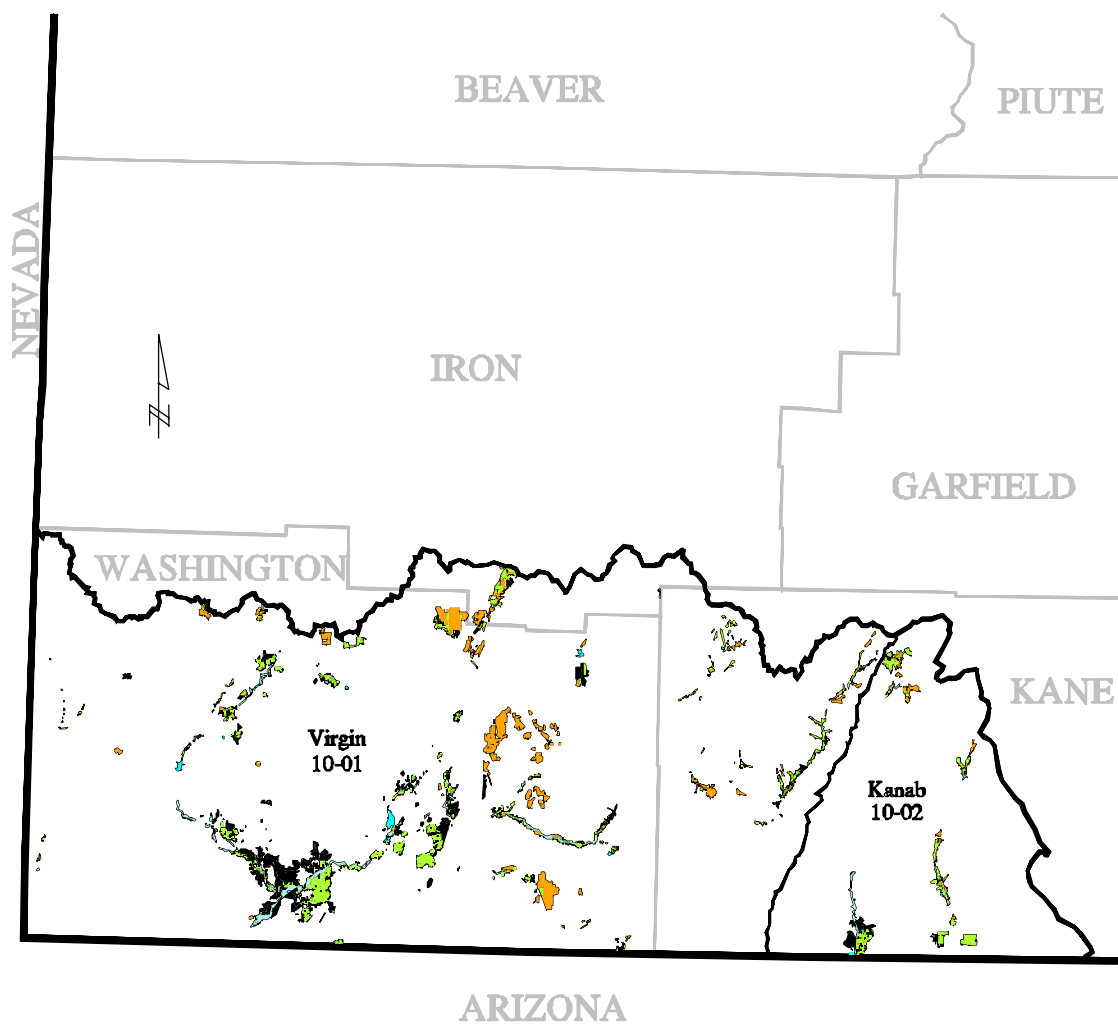
Elevations vary from a high of 10,375 feet at Black Mountain in the Cedar Mountains and 10,365 feet at Signal Peak in the Pine Valley Mountains to 2,297 feet and 2,461 feet where the Beaver Dam Wash and Virgin River cross the Utah/Arizona state line. Notable features of the basin include Zion National Park, Snow Canyon State Park and Coral Pink Sand Dunes State Park and a portion of Grand Staircase-Escalante National Monument.

The climate varies widely with the physiography of the basin. Average precipitation ranges from less than 6 inches per year at points south of St. George to more than 40 inches near Brianhead at the western edge of the Markagunt Plateau. Normal January temperatures range from less than 20 ° F to the mid-50s while normal July temperatures range from the low 50s to more than 100 ° F. Typically, the basin experiences short, mildly warm summers and long, cold winters at the higher elevations. At lower elevations, the basin sees hot and dry summers and mild winters.

Figure 47 illustrates the water-related land use of the basin and indicates that agriculture exists predominately in and around Hurricane/La Verkin, Kanab and St. George. Additionally, considerable acreage is regularly farmed near Alton, Kanarrville, Orderville and along the water courses of the basin. The figure also depicts the hydrologic study areas and the county lines within the basin.

### Data Collection

The Division of Water Resources conducted water-related land use inventories for the Kanab Creek Subarea in the summer of 1990 and for the Virgin River Subarea in the summer of 1991. Both years were relatively normal and the division believes that the data on the Kanab Creek/Virgin River Basin are representative of normal conditions.



**Figure 47. Mapped Water-Related Land Use of the Kanab Creek/Virgin River Basin.**

## Data Summary

The division inventoried more than 75,940 acres of land in Utah's portion of the Kanab Creek/Virgin River Basin. This represents only about 3.4 percent of the entire basin. Areas not inventoried are mainly rangeland and national forests. Of the inventoried acres, 25,603 are irrigated lands (including land that is fallow or idle), 7,931 are wet/open water areas (including reservoirs), and 21,190 are residential/industrial areas (including farmsteads and rural housing). Table 33 summarizes the division's 1978 and 1990-1991 land use data. It also indicates additional data will be collected in 1998.

**Table 33**  
**Kanab Creek/Virgin River Basin**  
**Land Use Summary**  
(Acres)

| Land Use                     | 1978               | 1990-91            | 1998 <sup>1</sup> |
|------------------------------|--------------------|--------------------|-------------------|
| Irrigated Croplands          | 22,946             | 25,603             |                   |
| Wet/Open Water Areas         | 2,970 <sup>2</sup> | 7,931 <sup>3</sup> |                   |
| Residential/Industrial Areas | ---                | 21,190             |                   |

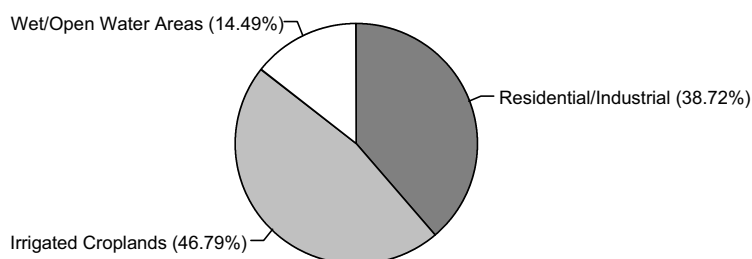
<sup>1</sup> Next planned inventory.

<sup>2</sup> Inventory is not complete.

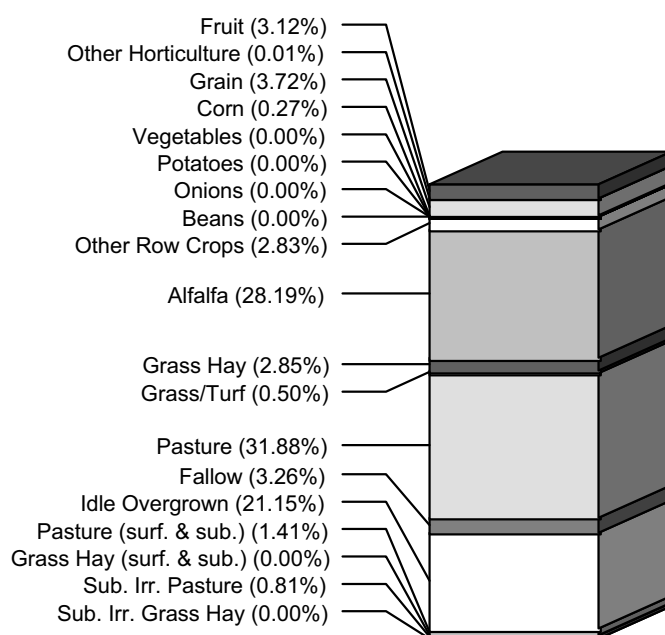
<sup>3</sup> Included Quail Creek Reservoir.

The division has further classified the water-related land use within the basin. Figure 48 delineates the four categories of water-related land use listed above by percentage.

Additionally, Figure 49 represents data from the category of surface irrigated cropland. The data are arranged into 17 different subcategories.



**Figure 48.** Delineation of Water-Related Land Use Categories within the Kanab Creek/Virgin River Basin (1990-91 Data).



**Figure 49.** Breakdown of Surface Irrigated Cropland within the Kanab Creek/Virgin River Basin (1990-91 Data).

Total basin acreage for irrigated lands, wet/open water areas, and residential/industrial are presented in Tables 34 by study area and Table 35 by county.

**TABLE 34**  
**SUMMARY OF LAND COVER BY STUDY AREA FOR THE KANAB CREEK/VIRGIN RIVER BASIN**  
**(1990 and 1991 Data - Units in Acres)**

| Code                                     | Cover                                      | Kanab<br>10-02 | Virgin<br>10-01 | Basin<br>Total |
|--|--|----------------|-----------------|----------------|
| <b><i>Surface Irrigated Cropland</i></b> |  |                |                 |                |
| IA1a                                     | Fruit                                      | 6              | 793             | 799            |
| IA1e                                     | Other Horticulture                         | 0              | 2               | 2              |
| IA2a                                     | Grain                                      | 69             | 883             | 952            |
| IA2a1                                    | Corn                                       | 0              | 69              | 69             |
| IA2b                                     | Vegetables                                 | 0              | 0               | 0              |
| IA2b1                                    | Potatoes                                   | 0              | 0               | 0              |
| IA2b2                                    | Onions                                     | 0              | 0               | 0              |
| IA2b3                                    | Beans                                      | 0              | 0               | 0              |
| IA2c                                     | Other Row Crops                            | 0              | 725             | 725            |
| IA3a                                     | Alfalfa                                    | 1,435          | 5,783           | 7,218          |
| IA3b                                     | Grass Hay                                  | 184            | 546             | 730            |
| IA3c                                     | Grass/Turf                                 | 0              | 128             | 128            |
| IA3d                                     | Pasture                                    | 1,370          | 6,791           | 8,161          |
| IA4a                                     | Fallow                                     | 99             | 736             | 835            |
| IA4b                                     | Idle Overgrown                             | 1,626          | 3,790           | 5,416          |
| IIA1a                                    | Pasture (surf. & sub.)                     | 31             | 330             | 361            |
| IIA1b                                    | Grass Hay (surf. & sub.)                   | 0              | 0               | 0              |
|  | <b><i>Subtotal</i></b>                     | <b>4,820</b>   | <b>20,576</b>   | <b>25,396</b>  |
| <b><i>Sub-Irrigated Cropland</i></b>     |  |                |                 |                |
| IIA2a                                    | Sub. Irr. Pasture                          | 147            | 60              | 207            |
| IIA2b                                    | Sub. Irr. Grass Hay                        | 0              | 0               | 0              |
|  | <b><i>Subtotal</i></b>                     | <b>147</b>     | <b>60</b>       | <b>207</b>     |
|  | <b><i>Total Irrigated Croplands</i></b>    | <b>4,967</b>   | <b>20,636</b>   | <b>25,603</b>  |
| <b><i>Wet/Open Water Areas</i></b>       |  |                |                 |                |
| IIB                                      | Cattail/Bullrush Aspect                    | 14             | 9               | 23             |
| IIB-E                                    | Wet/Vegetation Asp.                        | 0              | 0               | 0              |
| IIC                                      | Wet Flats                                  | 0              | 0               | 0              |
| IIE                                      | Riparian                                   | 899            | 5,345           | 6,244          |
| IIF                                      | Open Water                                 | 4              | 783             | 787            |
| IIF2                                     | Reservoirs                                 | 131            | 514             | 645            |
| IIF4a                                    | Temporary Flooded                          | 0              | 7               | 7              |
| IIF4b                                    | Sewage Lagoon                              | 120            | 95              | 215            |
| IIF4c                                    | Evaporation Pond                           | 0              | 10              | 10             |
|  | <b><i>Total Wet/Open Water Areas</i></b>   | <b>1,168</b>   | <b>6,763</b>    | <b>7,931</b>   |
| <b><i>Residential/Industrial</i></b>     |  |                |                 |                |
| VA                                       | Farmsteads                                 | 163            | 954             | 1,117          |
| VB                                       | Residential                                | 1,966          | 14,227          | 16,193         |
| VB3                                      | Open Spaces                                | 84             | 1,257           | 1,341          |
| VC                                       | Commercial/Industrial                      | 316            | 2,223           | 2,539          |
|  | <b><i>Total Residential/Industrial</i></b> | <b>2,529</b>   | <b>18,661</b>   | <b>21,190</b>  |
|  | <b><i>Total Land Use/Land Cover</i></b>    | <b>8,664</b>   | <b>46,060</b>   | <b>54,724</b>  |

**TABLE 35**  
**SUMMARY OF LAND COVER BY COUNTY FOR THE KANAB CREEK/VIRGIN RIVER BASIN**  
**(1990 and 1991 Data - Units in Acres)**

| Code                              | Cover                               | Iron<br>County | Kane<br>County | Washington<br>County | Basin<br>Total |
|-----------------------------------|-------------------------------------|----------------|----------------|----------------------|----------------|
| <b>Surface Irrigated Cropland</b> |                                     |                |                |                      |                |
| IA1a                              | Fruit                               | 0              | 71             | 728                  | 799            |
| IA1e                              | Other Horticulture                  | 0              | 0              | 2                    | 2              |
| IA2a                              | Grain                               | 0              | 126            | 826                  | 952            |
| IA2a1                             | Corn                                | 0              | 9              | 60                   | 69             |
| IA2b                              | Vegetables                          | 0              | 0              | 0                    | 0              |
| IA2b1                             | Potatoes                            | 0              | 0              | 0                    | 0              |
| IA2b2                             | Onions                              | 0              | 0              | 0                    | 0              |
| IA2b3                             | Beans                               | 0              | 0              | 0                    | 0              |
| IA2c                              | Other Row Crops                     | 0              | 0              | 725                  | 725            |
| IA3a                              | Alfalfa                             | 255            | 2,195          | 4,768                | 7,218          |
| IA3b                              | Grass Hay                           | 0              | 268            | 462                  | 730            |
| IA3c                              | Grass/Turf                          | 3              | 0              | 125                  | 128            |
| IA3d                              | Pasture                             | 659            | 2,639          | 4,863                | 8,161          |
| IA4a                              | Fallow                              | 72             | 101            | 662                  | 835            |
| IA4b                              | Idle Overgrown                      | 518            | 1,696          | 3,202                | 5,416          |
| IIA1a                             | Pasture (surf. & sub.)              | 15             | 146            | 200                  | 361            |
| IIA1b                             | Grass Hay (surf. & sub.)            | 0              | 0              | 0                    | 0              |
|                                   | <b>Subtotal</b>                     | <b>1,522</b>   | <b>7,251</b>   | <b>16,623</b>        | <b>25,396</b>  |
| <b>Sub-Irrigated Cropland</b>     |                                     |                |                |                      |                |
| IIA2a                             | Sub. Irr. Pasture                   | 0              | 147            | 60                   | 207            |
| IIA2b                             | Sub. Irr. Grass Hay                 | 0              | 0              | 0                    | 0              |
|                                   | <b>Subtotal</b>                     | <b>0</b>       | <b>147</b>     | <b>60</b>            | <b>207</b>     |
|                                   | <b>Total Irrigated Croplands</b>    | <b>1,522</b>   | <b>7,398</b>   | <b>16,683</b>        | <b>25,603</b>  |
| <b>Wet/Open Water Areas</b>       |                                     |                |                |                      |                |
| IIB                               | Cattail/Bullrush Aspect             | 0              | 14             | 9                    | 23             |
| IIB-E                             | Wet/Vegetation Asp.                 | 0              | 0              | 0                    | 0              |
| IIC                               | Wet Flats                           | 0              | 0              | 0                    | 0              |
| IIE                               | Riparian                            | 0              | 1,058          | 5,186                | 6,244          |
| IIF                               | Open Water                          | 13             | 63             | 711                  | 787            |
| IIF2                              | Reservoirs                          | 0              | 137            | 508                  | 645            |
| IIF4a                             | Temporary Flooded                   | 0              | 7              | 0                    | 7              |
| IIF4b                             | Sewage Lagoon                       | 0              | 120            | 95                   | 215            |
| IIF4c                             | Evaporation Pond                    | 0              | 7              | 3                    | 10             |
|                                   | <b>Total Wet/Open Water Areas</b>   | <b>13</b>      | <b>1,406</b>   | <b>6,512</b>         | <b>7,931</b>   |
| <b>Residential/Industrial</b>     |                                     |                |                |                      |                |
| VA                                | Farmsteads                          | 0              | 204            | 913                  | 1,117          |
| VB                                | Residential                         | 264            | 2,340          | 13,589               | 16,193         |
| VB3                               | Open Spaces                         | 3              | 119            | 1,219                | 1,341          |
| VC                                | Commercial/Industrial               | 6              | 337            | 2,196                | 2,539          |
|                                   | <b>Total Residential/Industrial</b> | <b>273</b>     | <b>3,000</b>   | <b>17,917</b>        | <b>21,190</b>  |
|                                   | <b>Total Land Use/Land Cover</b>    | <b>1,808</b>   | <b>11,804</b>  | <b>41,112</b>        | <b>54,724</b>  |

## References

1. *Atlas of Utah*, Weber State College, 1981.
2. *Hydrologic Unit Map - State of Utah*, U. S. Geological Survey, 1974.
3. *Kanab Creek/Virgin River Basin - Final Report for 35mm Aerial Photography*, Mapping and Analytical Photographic Services Inc., September 1990.
4. *Landform Map of Utah*, Merrill K. Ridd, 1961.
5. *Utah State Water Plan, Kanab Creek/Virgin River Basin*, Utah Board of Water Resources, August 1993.
6. *Water-Related Land Use Inventories, Kanab Creek/Virgin River Basin*, Utah Division of Water Resources, February 1993.

## STATEWIDE SUMMARY OF DATA

This section summarizes the basin and county data presented in this report for each of the basins into state totals for basins and state totals for counties.

The basin and county boundaries along with the water-related land use data, broken down into five main categories, are shown in Figure 50. Basin boundaries are boldly drawn while the county boundaries are lightly drawn. Only the basin names are shown on the figure.

The state of Utah has been divided into 11 hydrologic basins and 29 counties. The basin boundaries follow either natural topographic drainage boundaries or the state line. The Weber, Jordan, Sevier and West Colorado are the basins that only have natural topographic boundaries. The rest of the basins share the state line as part of their boundaries.

Counties are largely defined by political boundaries. However, some parts of most counties are defined by natural topographic boundaries. As noted in the introduction, data are originally collected by basin and later divided along county lines to get county data.

The Division of Water Resources inventoried more than 4,413,000 acres of land in Utah between 1986 and 1995 to obtain the water-related land use data present in this report. This inventoried land represents about 8.1 percent of the entire state. Areas not inventoried are mainly desert, rangeland or forest. Detail reports of each basin show that some non-irrigated or dry cropland has been inventoried. The inventoried dry cropland is shown as a separate category in Figure 50 but the data has not been included in any of the other various tables or figures. This is because the division seeks to inventory all lands that consume or evaporate water other than natural precipitation. Dry cropland acreage is not used to determine water budgets. Non-irrigated agriculture lands, however, generally have been mapped if they

fall within or border irrigated lands. Non-irrigated lands away from irrigated lands were normally not mapped. Future inventories may include all non-irrigated cropland in addition to the data presently included in these inventories.

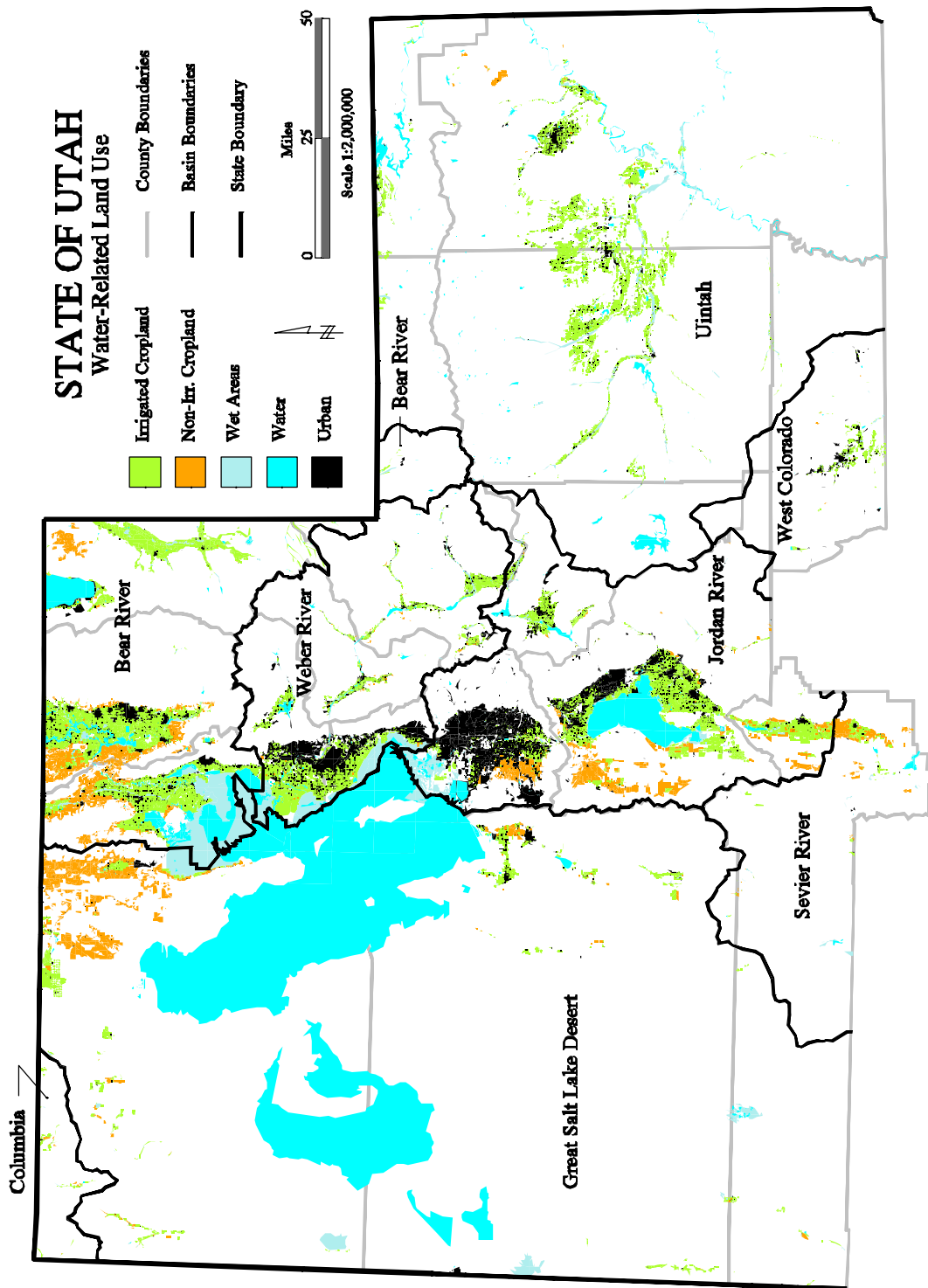
A somewhat different issue exists with what is called wet/open water areas. Wet/open water areas are generally located near irrigated lands or along lakes, reservoirs, streams, rivers and canals that supply water to irrigated lands. Data from these areas are needed and included in the inventories. Acreage away from these areas are not normally mapped. However, this represents only a small percent of the total. In some cases, such as around the Great Salt Lake, wet/open water data from other sources were added to Water Resources data.

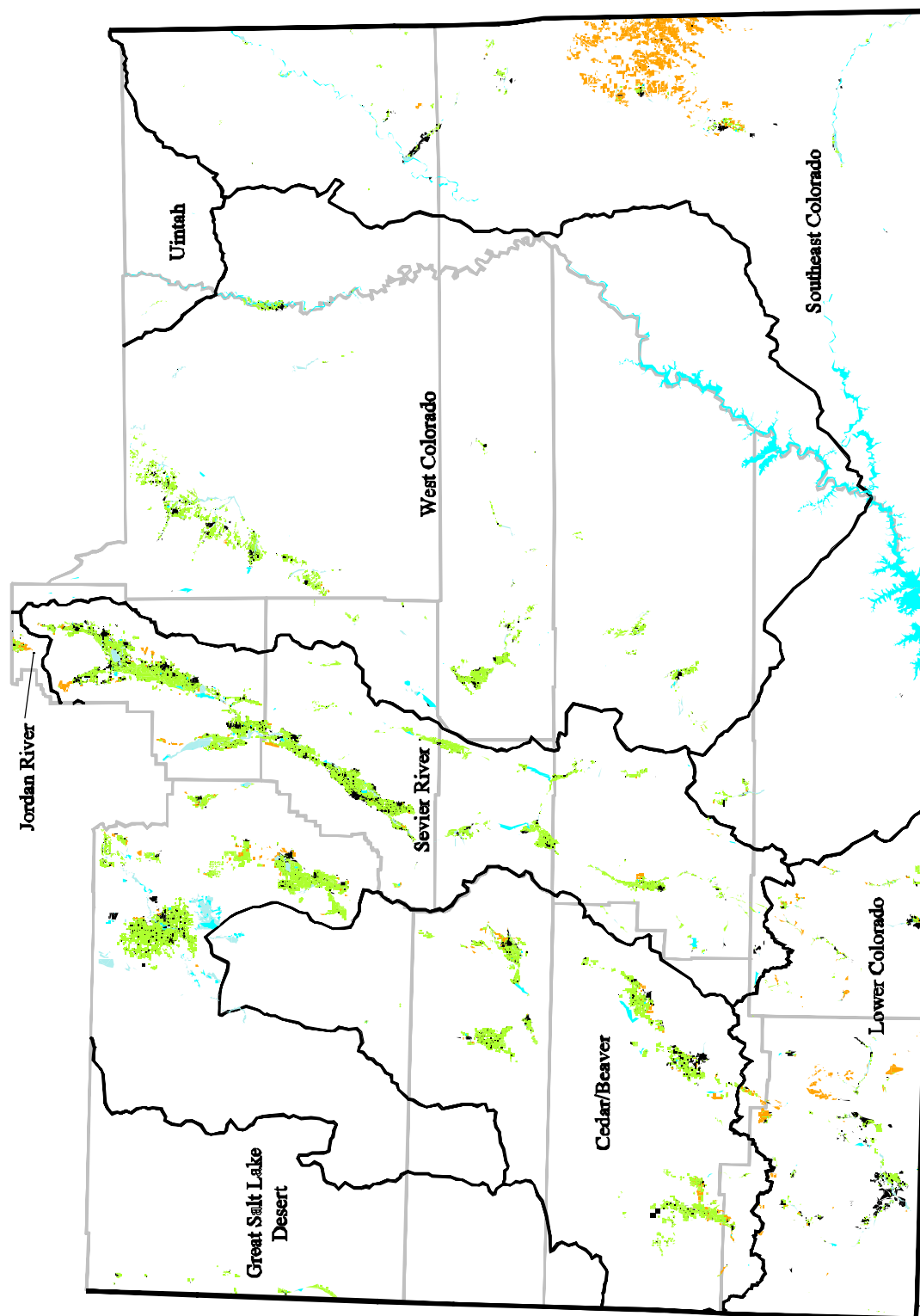
Table 36 shows the breakdown of the inventoried acres between irrigated croplands, wet/open water areas, residential/industrial areas, and other uninventoried areas.

**Table 36**  
**State of Utah Land Use Summary**  
(Acres)

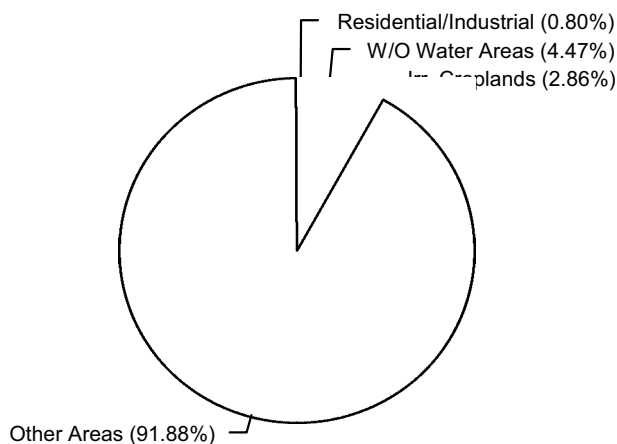
| Land Use                     | 1986-95    |
|------------------------------|------------|
| Irrigated Croplands          | 1,552,855  |
| Wet/Open Water Areas         | 2,427,230  |
| Residential/Industrial Areas | 433,147    |
| Other Uninventoried Areas    | 49,908,812 |

Figure 51 shows the same information as a pie chart. Figure 52 displays the statewide breakdown of irrigated cropland. It should be remembered that the entire state was not inventoried the same year. Therefore, the data presented are a tabulation of crop types from each basin over the ten-year period rather than a one-year inventory or an average of the crop types for the ten-year period.

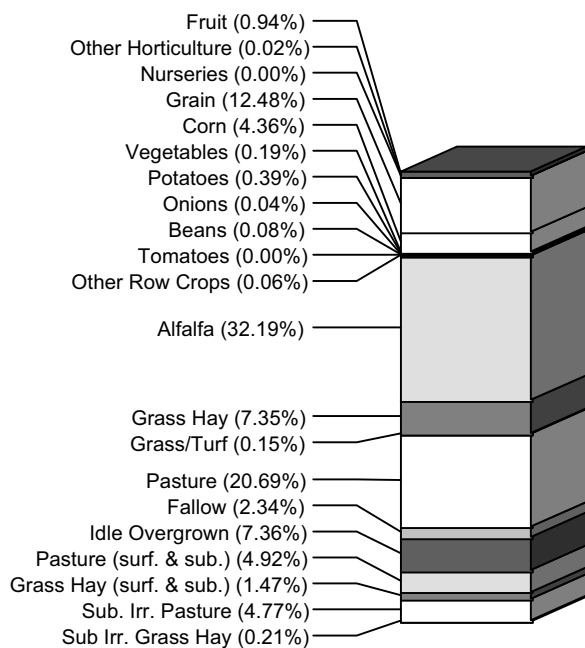




**Figure 50.** Mapped Water-Related Land Use by Basin with County Boundaries.



**Figure 51.** Delineation of Water-Related Land Use Categories within the State of Utah (1986-95 Data).



**Figure 52.** Breakdown of Irrigated Cropland within the State of Utah (1986-95 Data).

Table 37 summarizes the water-related land use by basins. These data are a summary of the basin totals for each of the 11 river basins presented individually in this report. The year(s) the data were collected is listed below its

name. This table then tabulates the data from the various years into a statewide summary. Because of this, the data cannot be given as an average of the ten-year period. However, the data should be good estimates of average patterns of water-related land use.

Table 38 summarizes the water-related land use by counties. These data are summaries of the county data presented by basin in the report. If a county is comprised of parts of several basins, then only the part of county data in that basin is shown by basin earlier in the report. This table combines these data for county totals. Summit County, for example, has data in four different basins. Also, the year the county data were collected is not shown as it was in Table 37. The reader can, however, refer to Table 39 to determine the years that county data were collected. Summit County data were, for example, collected in 1986, 1987, 1992 and 1995.

Table 39 was developed to show a direct comparison of irrigated land in the basins and counties. The table was designed to show which counties make up a given basin and conversely which basins are part of a given county. The table also allows the reader to make comparisons of the magnitude of irrigated land in a given county or basin to the basin, county or state total. Also, as pointed out earlier, the date the data were collected can quickly be identified.

Tables 40, 41 and 42 were set up the same as Table 39 and show the statewide tabulation of alfalfa, pasture and other grasses, and grain, respectively. These tables, like Table 39, show a comparison of the respective crops between counties and basins.

It is the goal of the Division of Water Resources to continue to update this water-related land use data. The data are used extensively to quantify water consumption throughout the state in conjunction with the division's water budget analyses.

**TABLE 37  
INVENTORIED WATER-RELATED LANDUSE LISTED BY BASIN**

| RIVER BASINS                 |                              |  |                       |         |         |                  |                  |           |                  |         |                             |                             |                           |           |
|------------------------------|------------------------------|--|-----------------------|---------|---------|------------------|------------------|-----------|------------------|---------|-----------------------------|-----------------------------|---------------------------|-----------|
| Landuse Codes and Categories |                              | <div><div>Columbia</div><div>Great Salt</div><div>Bear</div><div>Weber</div><div>Upper</div><div>Lower</div><div>Sevier</div><div>Cedar/</div><div>Uinta</div><div>West</div><div>Southeast</div><div>Kanab Creek/</div><div>Statewide</div></div> |                       |         |         |                  |                  |           |                  |         |                             |                             |                           |           |
|                              |                              | Columbia<br>(1989)   | Lake Desert<br>(1989) | (1986)  | (1987)  | Jordan<br>(1995) | Jordan<br>(1988) | (1993,95) | Beaver<br>(1989) | (1992)  | Colorado<br>River<br>(1991) | Colorado<br>River<br>(1990) | Virgin River<br>(1990-91) | Total     |
| Surface Irrigated Cropland   |                              |  |                       |         |         |                  |                  |           |                  |         |                             |                             |                           |           |
| IA1a                         | Fruit                        | 0  | 19                    | 2,750   | 826     | 9,586            | 90               | 67        | 15               | 33      | 261                         | 217                         | 799                       | 14,663    |
| IA1e                         | Other Horticulture           | 0  | 0                     | 41      | 39      | 0                | 77               | 0         | 0                | 0       | 160                         | 67                          | 2                         | 386       |
| IA1f                         | Nurseries                    | 0  | 0                     | 0       | 0       | 2                | 0                | 2         | 0                | 0       | 0                           | 0                           | 0                         | 4         |
| IA2a                         | Grain                        | 702  | 12,078                | 71,591  | 13,136  | 22,925           | 2,267            | 45,015    | 8,822            | 10,000  | 5,630                       | 611                         | 952                       | 193,729   |
| IA2a1                        | Corn                         | 0  | 447                   | 21,769  | 12,192  | 12,073           | 1,705            | 9,423     | 2,581            | 5,574   | 1,770                       | 50                          | 69                        | 67,653    |
| IA2b                         | Vegetables                   | 0  | 0                     | 0       | 2,707   | 3                | 122              | 27        | 95               | 0       | 11                          | 13                          | 0                         | 2,978     |
| IA2b1                        | Potatoes                     | 0  | 4                     | 1,016   | 196     | 0                | 5                | 1,241     | 3,541            | 9       | 0                           | 0                           | 0                         | 6,012     |
| IA2b2                        | Onions                       | 0  | 0                     | 336     | 344     | 9                | 0                | 0         | 0                | 0       | 0                           | 0                           | 0                         | 689       |
| IA2b3                        | Beans                        | 0  | 0                     | 889     | 272     | 0                | 103              | 12        | 0                | 0       | 8                           | 0                           | 0                         | 1,284     |
| IA2b4                        | Tomatoes                     | 0  | 0                     | 46      | 0       | 5                | 0                | 0         | 0                | 0       | 0                           | 0                           | 0                         | 51        |
| IA2c                         | Other Row Crops              | 0  | 0                     | 121     | 23      | 0                | 0                | 0         | 0                | 12      | 0                           | 0                           | 725                       | 881       |
| IA3a                         | Alfalfa                      | 1,768  | 29,504                | 68,803  | 28,330  | 46,634           | 6,858            | 140,216   | 67,185           | 62,004  | 35,211                      | 6,123                       | 7,218                     | 499,854   |
| IA3b                         | Grass Hay                    | 1,234  | 3,920                 | 35,534  | 14,356  | 7,448            | 240              | 11,722    | 1,965            | 31,267  | 5,225                       | 552                         | 730                       | 114,193   |
| IA3c                         | Grass/Turf                   | 0  | 75                    | 485     | 548     | 402              | 115              | 400       | 85               | 5       | 13                          | 0                           | 128                       | 2,256     |
| IA3d                         | Pasture                      | 960  | 19,363                | 37,125  | 39,614  | 34,825           | 7,947            | 54,073    | 11,561           | 77,947  | 26,301                      | 3,371                       | 8,161                     | 321,248   |
| IA4a                         | Fallow                       | 34   | 3,413                 | 12,492  | 498     | 4,414            | 561              | 6,350     | 1,878            | 2,375   | 2,189                       | 1,254                       | 835                       | 36,293    |
| IA4b                         | Idle Overgrown               | 310  | 11,207                | 4,810   | 2,975   | 14,326           | 4,156            | 36,321    | 12,671           | 8,665   | 9,744                       | 3,697                       | 5,416                     | 114,298   |
| IIA1a                        | Pasture (surf. & sub.)       | 198  | 7,587                 | 0       | 69      | 16,850           | 991              | 29,694    | 266              | 11,222  | 8,964                       | 158                         | 361                       | 76,360    |
| IIA1b                        | Grass Hay (surf. & sub.)     | 0  | 408                   | 19,863  | 0       | 45               | 0                | 2,184     | 0                | 226     | 49                          | 0                           | 0                         | 22,775    |
|                              | Subtotal                     | 5,206  | 88,025                | 277,671 | 116,125 | 169,547          | 25,237           | 336,747   | 110,665          | 209,339 | 95,536                      | 16,113                      | 25,396                    | 1,475,607 |
| Sub-Irrigated Cropland       |                              |  |                       |         |         |                  |                  |           |                  |         |                             |                             |                           |           |
| IIA2a                        | Sub. Irr. Pasture            | 109  | 465                   | 21,082  | 26,004  | 4,799            | 77               | 17,409    | 148              | 2,831   | 892                         | 9                           | 207                       | 74,032    |
| IIA2b                        | Sub. Irr. Grass Hay          | 0  | 0                     | 3,021   | 0       | 0                | 0                | 159       | 0                | 36      | 0                           | 0                           | 0                         | 3,216     |
|                              | Subtotal                     | 109  | 465                   | 24,103  | 26,004  | 4,799            | 77               | 17,568    | 148              | 2,867   | 892                         | 9                           | 207                       | 77,248    |
| Total Irrigated Croplands    |                              | 5,315  | 88,490                | 301,774 | 142,129 | 174,346          | 25,314           | 354,315   | 110,813          | 212,206 | 96,428                      | 16,122                      | 25,603                    | 1,552,855 |
| Wet/Open Water Areas         |                              |  |                       |         |         |                  |                  |           |                  |         |                             |                             |                           |           |
| IIB                          | Cattail/Bullrush Aspect      | 0  | 6,703                 | 0       | 1       | 64               | 12               | 0         | 0                | 1,761   | 135                         | 0                           | 23                        | 8,699     |
| IIB-E                        | Wet/Vegetation Asp.          | 0  | 55,357                | 0       | 29,409  | 41               | 9,181            | 0         | 0                | 71      | 699                         | 0                           | 0                         | 94,758    |
| IIC                          | Wet Flats                    | 129  | 44,397                | 4,768   | 26,297  | 3,840            | 16,524           | 20,235    | 0                | 861     | 53                          | 1,712                       | 0                         | 118,816   |
| IIE                          | Riparian                     | 34   | 1,224                 | 11,900  | 5,771   | 9,402            | 2,597            | 25,338    | 817              | 30,804  | 12,780                      | 5,974                       | 6,244                     | 112,885   |
| IIF                          | Open Water                   | 44   | 12,195                | 191,054 | 17,236  | 97,640           | 5,937            | 16,934    | 4,037            | 60,354  | 68,040                      | 92,159                      | 1,432                     | 567,062   |
| IIF4a                        | Temporary Flooded            | 0  | 108                   | 23,121  | 98      | 2,483            | 76               | 7,797     | 1,005            | 61      | 9                           | 0                           | 7                         | 34,765    |
| IIF4b                        | Sewage Lagoon                | 0  | 49                    | 61      | 415     | 374              | 24               | 955       | 114              | 537     | 296                         | 109                         | 215                       | 3,149     |
| IIF4c                        | Evaporation Pond             | 0  | 41,693                | 0       | 5       | 361              | 9,220            | 0         | 33               | 4       | 299                         | 675                         | 10                        | 52,300    |
| IIF5                         | Salt Water                   | 0  | 1,434,132             | 0       | 0       | 0                | 664              | 0         | 0                | 0       | 0                           | 0                           | 0                         | 1,434,796 |
|                              | Total Wet/Open Water Areas   | 207  | 1,595,858             | 230,904 | 79,232  | 114,205          | 44,235           | 71,259    | 6,006            | 94,453  | 82,311                      | 100,629                     | 7,931                     | 2,427,230 |
| Residential/Industrial       |                              |  |                       |         |         |                  |                  |           |                  |         |                             |                             |                           |           |
| VA                           | Farmsteads                   | 93   | 2,171                 | 0       | 1       | 8,373            | 1,562            | 11,720    | 2,594            | 4,749   | 3,093                       | 621                         | 1,117                     | 36,094    |
| VB                           | Residential                  | 0  | 5,577                 | 31,170  | 58,746  | 38,705           | 79,932           | 19,166    | 8,360            | 9,945   | 10,737                      | 5,940                       | 16,193                    | 284,471   |
| VB3                          | Open Spaces                  | 0  | 333                   | 1,640   | 3,487   | 6,544            | 9,097            | 1,516     | 430              | 882     | 932                         | 464                         | 1,341                     | 26,666    |
| VC                           | Commercial/Industrial        | 4  | 4,997                 | 3,540   | 18,811  | 11,623           | 30,095           | 5,545     | 2,249            | 2,593   | 2,989                       | 931                         | 2,539                     | 85,916    |
|                              | Total Residential/Industrial | 97   | 13,078                | 36,350  | 81,045  | 65,245           | 120,686          | 37,947    | 13,633           | 18,169  | 17,751                      | 7,956                       | 21,190                    | 433,147   |
| Total Land Use/Land Cover    |                              | 5,619  | 1,697,426             | 569,028 | 302,406 | 353,796          | 190,235          | 463,521   | 130,452          | 324,828 | 196,490                     | 124,707                     | 54,724                    | 4,413,232 |

**TABLE 38**  
**INVENTORIED WATER-RELATED LANDUSE LISTED BY COUNTY**

|                                     |                          | COUNTIES         |                     |                 |                  |                   |                 |                    |                 |                    |                 |                |                |                |                   |                  |
|-------------------------------------|--------------------------|------------------|---------------------|-----------------|------------------|-------------------|-----------------|--------------------|-----------------|--------------------|-----------------|----------------|----------------|----------------|-------------------|------------------|
| Landuse Codes and Categories        |                          | Beaver<br>County | Box Elder<br>County | Cache<br>County | Carbon<br>County | Daggett<br>County | Davis<br>County | Duchesne<br>County | Emery<br>County | Garfield<br>County | Grand<br>County | Iron<br>County | Juab<br>County | Kane<br>County | Millard<br>County | Morgan<br>County |
| <b>Surface Irrigated Cropland</b>   |                          |                  |                     |                 |                  |                   |                 |                    |                 |                    |                 |                |                |                |                   |                  |
| IA1a                                | Fruit                    | 0                | 2,470               | 183             | 96               | 0                 | 383             | 3                  | 76              | 41                 | 136             | 15             | 0              | 71             | 54                | 1                |
| IA1e                                | Other Horticulture       | 0                | 0                   | 20              | 0                | 0                 | 39              | 0                  | 117             | 20                 | 63              | 0              | 0              | 0              | 0                 | 0                |
| IA1f                                | Nurseries                | 0                | 0                   | 0               | 0                | 0                 | 0               | 0                  | 0               | 0                  | 0               | 0              | 0              | 0              | 0                 | 0                |
| IA2a                                | Grain                    | 2,361            | 44,123              | 34,347          | 299              | 7                 | 4,604           | 6,583              | 1,229           | 2,053              | 80              | 6,229          | 6,151          | 146            | 21,836            | 1,862            |
| IA2a1                               | Corn                     | 1,902            | 12,874              | 8,911           | 259              | 0                 | 5,158           | 2,550              | 1,299           | 18                 | 195             | 648            | 741            | 9              | 2,825             | 757              |
| IA2b                                | Vegetables               | 0                | 0                   | 0               | 0                | 0                 | 2,314           | 0                  | 0               | 0                  | 3               | 94             | 0              | 0              | 0                 | 6                |
| IA2b1                               | Potatoes                 | 100              | 1,013               | 3               | 0                | 0                 | 173             | 7                  | 0               | 0                  | 0               | 3,250          | 0              | 0              | 1,241             | 0                |
| IA2b2                               | Onions                   | 0                | 331                 | 5               | 0                | 0                 | 259             | 0                  | 0               | 0                  | 0               | 0              | 0              | 0              | 0                 | 0                |
| IA2b3                               | Beans                    | 0                | 684                 | 205             | 0                | 0                 | 0               | 0                  | 0               | 0                  | 0               | 0              | 0              | 0              | 0                 | 0                |
| IA2b4                               | Tomatoes                 | 0                | 37                  | 9               | 0                | 0                 | 0               | 0                  | 0               | 0                  | 0               | 0              | 0              | 0              | 0                 | 0                |
| IA2c                                | Other Row Crops          | 0                | 30                  | 91              | 0                | 0                 | 0               | 12                 | 0               | 0                  | 0               | 0              | 0              | 0              | 0                 | 0                |
| IA3a                                | Alfalfa                  | 22,800           | 38,933              | 39,591          | 5,893            | 2,318             | 6,681           | 28,106             | 16,762          | 8,715              | 2,191           | 43,462         | 14,845         | 2,228          | 71,077            | 4,594            |
| IA3b                                | Grass Hay                | 1,397            | 4,519               | 2,991           | 457              | 4,526             | 1,089           | 18,852             | 3,727           | 1,930              | 104             | 464            | 896            | 268            | 488               | 1,154            |
| IA3c                                | Grass/Turf               | 21               | 461                 | 24              | 0                | 0                 | 184             | 5                  | 3               | 0                  | 10              | 67             | 227            | 0              | 0                 | 34               |
| IA3d                                | Pasture                  | 6,305            | 14,834              | 19,145          | 4,026            | 2,705             | 8,770           | 44,827             | 16,998          | 8,772              | 1,049           | 5,480          | 2,984          | 2,747          | 11,538            | 2,285            |
| IA4a                                | Fallow                   | 435              | 8,910               | 4,783           | 20               | 0                 | 118             | 621                | 1,091           | 536                | 478             | 1,440          | 737            | 101            | 3,250             | 166              |
| IA4b                                | Idle Overgrown           | 3,379            | 8,270               | 2,923           | 2,248            | 14                | 1,512           | 4,206              | 6,699           | 1,344              | 972             | 9,121          | 4,632          | 1,696          | 25,096            | 206              |
| IIA1a                               | Pasture (surf. & sub.)   | 266              | 5,482               | 0               | 387              | 843               | 1               | 4,092              | 3,208           | 7,007              | 12              | 459            | 2,538          | 373            | 887               | 0                |
| IIA1b                               | Grass Hay (surf. & sub.) | 0                | 746                 | 6               | 0                | 181               | 0               | 0                  | 34              | 0                  | 0               | 0              | 49             | 0              | 0                 | 0                |
|                                     | <b>Subtotal</b>          | <b>38,966</b>    | <b>143,717</b>      | <b>113,237</b>  | <b>13,685</b>    | <b>10,594</b>     | <b>31,285</b>   | <b>109,864</b>     | <b>51,243</b>   | <b>30,436</b>      | <b>5,293</b>    | <b>70,729</b>  | <b>33,800</b>  | <b>7,639</b>   | <b>138,292</b>    | <b>11,065</b>    |
| <b>Sub-Irrigated Cropland</b>       |                          |                  |                     |                 |                  |                   |                 |                    |                 |                    |                 |                |                |                |                   |                  |
| IIA2a                               | Sub. Irr. Pasture        | 141              | 11,253              | 6,958           | 273              | 758               | 6,542           | 39                 | 270             | 495                | 39              | 72             | 2,004          | 346            | 373               | 707              |
| IIA2b                               | Sub. Irr. Grass Hay      | 0                | 0                   | 0               | 0                | 0                 | 0               | 36                 | 0               | 0                  | 0               | 0              | 0              | 0              | 0                 | 0                |
|                                     | <b>Subtotal</b>          | <b>141</b>       | <b>11,253</b>       | <b>6,958</b>    | <b>273</b>       | <b>758</b>        | <b>6,542</b>    | <b>75</b>          | <b>270</b>      | <b>495</b>         | <b>39</b>       | <b>72</b>      | <b>2,004</b>   | <b>346</b>     | <b>373</b>        | <b>707</b>       |
| <b>Total Irrigated Croplands</b>    |                          | <b>39,107</b>    | <b>154,970</b>      | <b>120,195</b>  | <b>13,958</b>    | <b>11,352</b>     | <b>37,827</b>   | <b>109,939</b>     | <b>51,513</b>   | <b>30,931</b>      | <b>5,332</b>    | <b>70,801</b>  | <b>35,804</b>  | <b>7,985</b>   | <b>138,665</b>    | <b>11,772</b>    |
| <b>Wet/Open Water Areas</b>         |                          |                  |                     |                 |                  |                   |                 |                    |                 |                    |                 |                |                |                |                   |                  |
| IIB                                 | Cattail/Bullrush Aspect  | 0                | 1,032               | 0               | 47               | 0                 | 1               | 22                 | 20              | 0                  | 0               | 0              | 5,340          | 14             | 0                 | 0                |
| IIB-E                               | Wet/Vegetation Asp.      | 0                | 28,832              | 0               | 7                | 0                 | 32,335          | 0                  | 116             | 0                  | 0               | 0              | 33             | 0              | 0                 | 0                |
| IIC                                 | Wet Flats                | 0                | 18,764              | 29              | 0                | 0                 | 24,592          | 15                 | 0               | 0                  | 330             | 0              | 2,304          | 113            | 16,583            | 0                |
| IIE                                 | Riparian                 | 440              | 4,337               | 4,581           | 1,907            | 358               | 150             | 12,408             | 8,139           | 1,626              | 3,486           | 338            | 2,652          | 1,287          | 7,630             | 1,325            |
| IIF                                 | Open Water               | 1,225            | 147,827             | 9,248           | 3,503            | 16,119            | 5,091           | 8,209              | 3,720           | 16,840             | 5,929           | 2,679          | 5,851          | 75,745         | 3,371             | 1,363            |
| IIF4a                               | Temporary Flooded        | 0                | 17,180              | 5,941           | 0                | 55                | 0               | 0                  | 0               | 9                  | 0               | 1,005          | 1,235          | 7              | 6,217             | 0                |
| IIF4b                               | Sewage Lagoon            | 58               | 8                   | 61              | 13               | 55                | 296             | 86                 | 199             | 27                 | 27              | 56             | 30             | 150            | 214               | 0                |
| IIF4c                               | Evaporation Pond         | 33               | 0                   | 0               | 299              | 0                 | 2               | 4                  | 0               | 86                 | 0               | 0              | 0              | 7              | 0                 | 0                |
| IIF5                                | Salt Water               | 0                | 814,548             | 0               | 0                | 0                 | 214,824         | 0                  | 0               | 0                  | 0               | 0              | 0              | 0              | 0                 | 0                |
| <b>Total Wet/Open Water Areas</b>   |                          | <b>1,756</b>     | <b>1,032,528</b>    | <b>19,860</b>   | <b>5,776</b>     | <b>16,587</b>     | <b>277,291</b>  | <b>20,744</b>      | <b>12,194</b>   | <b>18,588</b>      | <b>9,772</b>    | <b>4,078</b>   | <b>17,445</b>  | <b>77,323</b>  | <b>34,015</b>     | <b>2,688</b>     |
| <b>Residential/Industrial</b>       |                          |                  |                     |                 |                  |                   |                 |                    |                 |                    |                 |                |                |                |                   |                  |
| VA                                  | Farmsteads               | 812              | 1,025               | 0               | 842              | 276               | 0               | 2,259              | 1,273           | 636                | 185             | 1,735          | 591            | 204            | 3,353             | 0                |
| VB                                  | Residential              | 1,911            | 9,188               | 16,530          | 4,911            | 477               | 24,482          | 3,308              | 3,561           | 2,074              | 3,024           | 6,249          | 2,262          | 3,616          | 4,288             | 1,962            |
| VB3                                 | Open Spaces              | 168              | 621                 | 836             | 306              | 202               | 846             | 247                | 448             | 127                | 330             | 255            | 67             | 119            | 371               | 128              |
| VC                                  | Commercial/Industrial    | 658              | 4,730               | 1,648           | 1,559            | 55                | 10,790          | 1,479              | 946             | 385                | 358             | 1,560          | 327            | 403            | 3,372             | 346              |
| <b>Total Residential/Industrial</b> |                          | <b>3,549</b>     | <b>15,564</b>       | <b>19,014</b>   | <b>7,618</b>     | <b>1,010</b>      | <b>36,118</b>   | <b>7,293</b>       | <b>6,228</b>    | <b>3,222</b>       | <b>3,897</b>    | <b>9,799</b>   | <b>3,247</b>   | <b>4,342</b>   | <b>11,384</b>     | <b>2,436</b>     |
| <b>Total Land Use/Land Cover</b>    |                          | <b>44,412</b>    | <b>1,203,062</b>    | <b>159,069</b>  | <b>27,352</b>    | <b>28,949</b>     | <b>351,236</b>  | <b>137,976</b>     | <b>69,935</b>   | <b>52,741</b>      | <b>19,001</b>   | <b>84,678</b>  | <b>56,496</b>  | <b>89,650</b>  | <b>184,064</b>    | <b>16,896</b>    |

**TABLE 38**  
**INVENTORIED WATER-RELATED LANDUSE LISTED BY COUNTY (Cont'd)**

| COUNTIES                     |                          |                 |                |                     |                    |                   |                  |                  |                  |                  |                |                   |                      |                 |                 |                     |
|------------------------------|--------------------------|-----------------|----------------|---------------------|--------------------|-------------------|------------------|------------------|------------------|------------------|----------------|-------------------|----------------------|-----------------|-----------------|---------------------|
| Landuse Codes and Categories |                          | Piute<br>County | Rich<br>County | Salt Lake<br>County | San Juan<br>County | Sanpete<br>County | Sevier<br>County | Summit<br>County | Tooele<br>County | Uintah<br>County | Utah<br>County | Wasatch<br>County | Washington<br>County | Wayne<br>County | Weber<br>County | Statewide<br>Totals |
| Surface Irrigated Cropland   |                          |                 |                |                     |                    |                   |                  |                  |                  |                  |                |                   |                      |                 |                 |                     |
| IA1a                         | Fruit                    | 0               | 97             | 90                  | 55                 | 10                | 20               | 2                | 2                | 30               | 9,582          | 4                 | 728                  | 74              | 440             | 14,663              |
| IA1e                         | Other Horticulture       | 0               | 21             | 77                  | 27                 | 0                 | 0                | 0                | 0                | 0                | 0              | 0                 | 2                    | 0               | 0               | 386                 |
| IA1f                         | Nurseries                | 0               | 0              | 0                   | 0                  | 2                 | 0                | 0                | 0                | 0                | 2              | 0                 | 0                    | 0               | 0               | 4                   |
| IA2a                         | Grain                    | 1,547           | 2,017          | 2,267               | 378                | 12,419            | 5,932            | 926              | 3,371            | 3,356            | 17,688         | 1,403             | 1,047                | 3,642           | 5,826           | 193,729             |
| IA2a1                        | Corn                     | 43              | 0              | 1,705               | 0                  | 2,037             | 4,437            | 0                | 382              | 3,019            | 11,470         | 0                 | 65                   | 72              | 6,277           | 67,653              |
| IA2b                         | Vegetables               | 0               | 0              | 122                 | 10                 | 27                | 0                | 0                | 0                | 0                | 3              | 0                 | 1                    | 11              | 387             | 2,978               |
| IA2b1                        | Potatoes                 | 0               | 0              | 5                   | 0                  | 0                 | 0                | 0                | 4                | 2                | 0              | 0                 | 191                  | 0               | 23              | 6,012               |
| IA2b2                        | Onions                   | 0               | 0              | 0                   | 0                  | 0                 | 0                | 0                | 0                | 0                | 9              | 0                 | 0                    | 0               | 85              | 689                 |
| IA2b3                        | Beans                    | 0               | 0              | 103                 | 0                  | 0                 | 12               | 0                | 0                | 0                | 0              | 0                 | 0                    | 8               | 272             | 1,284               |
| IA2b4                        | Tomatoes                 | 0               | 0              | 0                   | 0                  | 0                 | 0                | 0                | 0                | 0                | 5              | 0                 | 0                    | 0               | 0               | 51                  |
| IA2c                         | Other Row Crops          | 0               | 0              | 0                   | 0                  | 0                 | 0                | 0                | 0                | 0                | 0              | 0                 | 725                  | 0               | 23              | 881                 |
| IA3a                         | Alfalfa                  | 6,661           | 9,150          | 6,858               | 3,079              | 32,820            | 24,134           | 4,791            | 9,270            | 31,011           | 30,059         | 6,177             | 5,917                | 9,216           | 12,515          | 499,854             |
| IA3b                         | Grass Hay                | 1,908           | 30,687         | 240                 | 454                | 6,386             | 1,946            | 10,239           | 1,515            | 6,864            | 4,876          | 2,642             | 566                  | 484             | 2,524           | 114,193             |
| IA3c                         | Grass/Turf               | 0               | 0              | 115                 | 0                  | 5                 | 168              | 298              | 75               | 0                | 402            | 0                 | 125                  | 0               | 32              | 2,256               |
| IA3d                         | Pasture                  | 6,811           | 5,549          | 7,947               | 1,976              | 17,165            | 15,142           | 17,341           | 12,702           | 28,908           | 24,586         | 7,122             | 5,247                | 2,634           | 15,653          | 321,248             |
| IA4a                         | Fallow                   | 388             | 197            | 561                 | 912                | 1,097             | 907              | 87               | 2,395            | 1,626            | 4,050          | 178               | 737                  | 328             | 144             | 36,293              |
| IA4b                         | Idle Overgrown           | 1,664           | 123            | 4,156               | 2,412              | 6,711             | 2,949            | 174              | 3,155            | 4,347            | 10,482         | 859               | 3,659                | 201             | 1,088           | 114,298             |
| IIA1a                        | Pasture (surf. & sub.)   | 5,229           | 0              | 992                 | 158                | 8,906             | 8,255            | 1,639            | 1,233            | 4,742            | 11,606         | 3,107             | 200                  | 4,671           | 67              | 76,360              |
| IIA1b                        | Grass Hay (surf. & sub.) | 0               | 19,519         | 0                   | 0                  | 2,135             | 0                | 0                | 0                | 45               | 0              | 45                | 0                    | 15              | 0               | 22,775              |
|                              | Subtotal                 | 24,251          | 67,360         | 25,238              | 9,461              | 89,720            | 63,902           | 35,497           | 34,104           | 83,950           | 124,820        | 21,537            | 19,210               | 21,356          | 45,356          | 1,475,607           |
| Sub-Irrigated Cropland       |                          |                 |                |                     |                    |                   |                  |                  |                  |                  |                |                   |                      |                 |                 |                     |
| IIA2a                        | Sub. Irr. Pasture        | 420             | 3,056          | 77                  | 9                  | 14,239            | 480              | 1,432            | 72               | 1,970            | 3,236          | 810               | 60                   | 103             | 17,798          | 74,032              |
| IIA2b                        | Sub. Irr. Grass Hay      | 0               | 3,021          | 0                   | 0                  | 159               | 0                | 0                | 0                | 0                | 0              | 0                 | 0                    | 0               | 0               | 3,216               |
|                              | Subtotal                 | 420             | 6,077          | 77                  | 9                  | 14,398            | 480              | 1,432            | 72               | 1,970            | 3,236          | 810               | 60                   | 103             | 17,798          | 77,248              |
| Total Irrigated Croplands    |                          | 24,671          | 73,437         | 25,315              | 9,470              | 104,118           | 64,382           | 36,929           | 34,176           | 85,920           | 128,056        | 22,347            | 19,270               | 21,459          | 63,154          | 712,704             |
| Wet/Open Water Areas         |                          |                 |                |                     |                    |                   |                  |                  |                  |                  |                |                   |                      |                 |                 |                     |
| IIB                          | Cattail/Bullrush Aspect  | 0               | 0              | 12                  | 0                  | 0                 | 0                | 0                | 364              | 1,739            | 31             | 0                 | 9                    | 68              | 0               | 8,699               |
| IIB-E                        | Wet/Vegetation Asp.      | 0               | 0              | 9,569               | 0                  | 0                 | 576              | 0                | 0                | 71               | 8              | 0                 | 0                    | 0               | 23,211          | 94,758              |
| IIC                          | Wet Flats                | 0               | 633            | 16,808              | 1,269              | 1,938             | 53               | 53               | 10,617           | 846              | 3,840          | 0                 | 0                    | 0               | 20,029          | 118,816             |
| IIE                          | Riparian                 | 885             | 2,666          | 2,597               | 2,938              | 12,032            | 2,880            | 4,647            | 734              | 15,750           | 6,665          | 2,554             | 5,259                | 1,214           | 1,400           | 112,885             |
| IIF                          | Open Water               | 5,002           | 37,084         | 6,057               | 54,571             | 3,001             | 4,792            | 5,927            | 3,223            | 16,281           | 90,853         | 21,639            | 1,341                | 254             | 10,317          | 567,062             |
| IIF4a                        | Temporary Flooded        | 0               | 0              | 76                  | 0                  | 345               | 0                | 0                | 107              | 6                | 2,479          | 4                 | 0                    | 0               | 99              | 34,765              |
| IIF4b                        | Sewage Lagoon            | 0               | 0              | 24                  | 109                | 344               | 386              | 0                | 41               | 396              | 242            | 105               | 95                   | 8               | 119             | 3,149               |
| IIF4c                        | Evaporation Pond         | 0               | 0              | 9,223               | 589                | 0                 | 0                | 0                | 41,693           | 0                | 361            | 0                 | 3                    | 0               | 0               | 52,300              |
| IIF5                         | Salt Water               | 0               | 0              | 15,919              | 0                  | 0                 | 0                | 0                | 333,763          | 0                | 0              | 0                 | 0                    | 0               | 55,742          | 1,434,796           |
| Total Wet/Open Water Areas   |                          | 5,887           | 40,383         | 60,285              | 59,476             | 17,660            | 8,687            | 10,627           | 390,542          | 35,089           | 104,479        | 24,302            | 6,707                | 1,544           | 110,917         | 2,427,230           |
| Residential/Industrial       |                          |                 |                |                     |                    |                   |                  |                  |                  |                  |                |                   |                      |                 |                 |                     |
| VA                           | Farmsteads               | 406             | 0              | 1,562               | 487                | 5,787             | 2,120            | 186              | 897              | 2,157            | 4,435          | 3,213             | 950                  | 703             | 0               | 36,094              |
| VB                           | Residential              | 1,021           | 5,185          | 79,932              | 2,571              | 6,136             | 5,018            | 7,189            | 5,220            | 6,125            | 33,155         | 35                | 17,714               | 1,278           | 26,049          | 284,471             |
| VB3                          | Open Spaces              | 121             | 186            | 9,097               | 179                | 501               | 442              | 380              | 330              | 424              | 5,564          | 9                 | 2,087                | 75              | 2,200           | 26,666              |
| VC                           | Commercial/Industrial    | 172             | 135            | 30,096              | 623                | 770               | 739              | 590              | 2,015            | 1,047            | 11,135         | 12                | 2,590                | 290             | 7,086           | 85,916              |
| Total Residential/Industrial |                          | 1,720           | 5,506          | 120,687             | 3,860              | 13,194            | 8,319            | 8,345            | 8,462            | 9,753            | 54,289         | 3,269             | 23,341               | 2,346           | 35,335          | 433,147             |
| Total Land Use/Land Cover    |                          | 32,278          | 119,326        | 206,287             | 72,806             | 134,972           | 81,388           | 55,901           | 433,180          | 130,762          | 286,824        | 49,918            | 49,318               | 25,349          | 209,406         | 4,413,232           |

**TABLE 39**  
**STATEWIDE IRRIGATED LAND USE BY BASIN AND COUNTY**

|                 | <i>RIVER BASINS</i>        |  |                        |                         |                                    |                                    |                          |                                     |                         |                                     |  |  | <b>Totals</b>    |
|-----------------|----------------------------|--|------------------------|-------------------------|------------------------------------|------------------------------------|--------------------------|-------------------------------------|-------------------------|-------------------------------------|--|--|------------------|
|                 | <b>Columbia<br/>(1989)</b> | <b>Great Salt<br/>Lake Desert<br/>(1989)</b> | <b>Bear<br/>(1986)</b> | <b>Weber<br/>(1987)</b> | <b>Upper<br/>Jordan<br/>(1995)</b> | <b>Lower<br/>Jordan<br/>(1988)</b> | <b>Sevier<br/>(1995)</b> | <b>Cedar/<br/>Beaver<br/>(1989)</b> | <b>Uinta<br/>(1992)</b> | <b>West<br/>Colorado<br/>(1991)</b> | <b>Southeast<br/>Colorado<br/>(1990)</b> | <b>Kanab Creek/<br/>Virgin River<br/>(1990-91)</b> |                  |
| <b>COUNTIES</b> |                            |  |                        |                         |                                    |                                    |                          |                                     |                         |                                     |  |  |                  |
| Beaver          | ---                        | 0 *  | ---                    | ---                     | ---                                | ---                                | ---                      | 39,107                              | ---                     | ---                                 | ---                                      | ---  | 39,107           |
| Box Elder       | 5,315                      | 43,784                                       | 105,869                | 2                       | ---                                | ---                                | ---                      | ---                                 | ---                     | ---                                 | ---                                      | ---  | 154,970          |
| Cache           | ---                        | ---  | 119,813                | ---                     | ---                                | ---                                | ---                      | ---                                 | ---                     | ---                                 | ---                                      | ---  | 119,813          |
| Carbon          | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | ---                                 | 473                     | 13,867                              | ---                                      | ---  | 14,340           |
| Daggett         | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | ---                                 | 11,352                  | ---                                 | ---                                      | ---  | 11,352           |
| Davis           | ---                        | 0 *  | ---                    | 37,827                  | ---                                | ---                                | ---                      | ---                                 | ---                     | ---                                 | ---                                      | ---  | 37,827           |
| Duchesne        | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | ---                                 | 109,939                 | 0 *                                 | ---                                      | ---  | 109,939          |
| Emery           | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | ---                                 | 204                     | 51,309                              | ---                                      | ---  | 51,513           |
| Garfield        | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | 21,442                   | ---                                 | ---                     | 6,749                               | 2,740                                    | ---  | 30,931           |
| Grand           | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | ---                                 | 0 *                     | 1,473                               | 3,859                                    | ---  | 5,332            |
| Iron            | ---                        | 0 *  | ---                    | ---                     | ---                                | ---                                | 540                      | 68,739                              | ---                     | ---                                 | ---                                      | 1,522  | 70,801           |
| Juab            | ---                        | 3,548  | ---                    | ---                     | 21,001                             | ---                                | 11,255                   | ---                                 | ---                     | ---                                 | ---                                      | ---  | 35,804           |
| Kane            | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | 534                      | ---                                 | ---                     | 0 *                                 | 53                                       | 7,398  | 7,985            |
| Millard         | ---                        | 7,179  | ---                    | ---                     | ---                                | ---                                | 131,106                  | 380                                 | ---                     | ---                                 | ---                                      | ---  | 138,665          |
| Morgan          | ---                        | ---  | ---                    | 11,772                  | ---                                | ---                                | ---                      | ---                                 | ---                     | ---                                 | ---                                      | ---  | 11,772           |
| Piute           | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | 24,671                   | ---                                 | ---                     | ---                                 | ---                                      | ---  | 24,671           |
| Rich            | ---                        | ---  | 73,437                 | ---                     | ---                                | ---                                | ---                      | ---                                 | ---                     | ---                                 | ---                                      | ---  | 73,437           |
| Salt Lake       | ---                        | 0 *  | ---                    | 1                       | ---                                | 25,314                             | ---                      | ---                                 | ---                     | ---                                 | ---                                      | ---  | 25,315           |
| San Juan        | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | ---                                 | ---                     | 0 *                                 | 9,470                                    | ---  | 9,470            |
| Sanpete         | ---                        | ---  | ---                    | ---                     | 2,359                              | ---                                | 101,759                  | ---                                 | ---                     | 0 *                                 | ---                                      | ---  | 104,118          |
| Sevier          | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | 62,811                   | ---                                 | ---                     | 1,571                               | ---                                      | ---  | 64,382           |
| Summit          | ---                        | ---  | 2,655                  | 29,373                  | 2,426                              | ---                                | ---                      | ---                                 | 2,475                   | ---                                 | ---                                      | ---  | 36,929           |
| Tooele          | ---                        | 33,979                                       | ---                    | ---                     | ---                                | ---                                | 197                      | ---                                 | ---                     | ---                                 | ---                                      | ---  | 34,176           |
| Uintah          | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | ---                                 | 85,920                  | ---                                 | ---                                      | ---  | 85,920           |
| Utah            | ---                        | ---  | ---                    | ---                     | 128,056                            | ---                                | ---                      | ---                                 | 0 *                     | 0 *                                 | ---                                      | ---  | 128,056          |
| Wasatch         | ---                        | ---  | ---                    | ---                     | 20,504                             | ---                                | ---                      | ---                                 | 1,843                   | 0 *                                 | ---                                      | ---  | 22,347           |
| Washington      | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | 2,587                               | ---                     | ---                                 | ---                                      | 16,683   | 19,270           |
| Wayne           | ---                        | ---  | ---                    | ---                     | ---                                | ---                                | ---                      | ---                                 | ---                     | 21,459                              | ---                                      | ---  | 21,459           |
| Weber           | ---                        | 0 *  | ---                    | 63,154                  | ---                                | ---                                | ---                      | ---                                 | ---                     | ---                                 | ---                                      | ---  | 63,154           |
| <b>Totals</b>   | <b>5,315</b>               | <b>88,490</b>                                | <b>301,774</b>         | <b>142,129</b>          | <b>174,346</b>                     | <b>25,314</b>                      | <b>354,315</b>           | <b>110,813</b>                      | <b>212,206</b>          | <b>96,428</b>                       | <b>16,122</b>                            | <b>25,603</b>                                      | <b>1,552,855</b> |

\* Zero values indicate an area was mapped but irrigated land use was not found.

Note: All values are in units of acres.

**TABLE 40**  
**ALFALFA LISTED BY BASIN AND COUNTY**

| RIVER BASINS |                    |                                     |                |                 |                           |                           |                  |                            |                 |                                     |  |   |                    |
|--------------|--------------------|-------------------------------------|----------------|-----------------|---------------------------|---------------------------|------------------|----------------------------|-----------------|-------------------------------------|--|---|--------------------|
|              | Columbia<br>(1989) | Great Salt<br>Lake Desert<br>(1989) | Bear<br>(1986) | Weber<br>(1987) | Upper<br>Jordan<br>(1995) | Lower<br>Jordan<br>(1988) | Sevier<br>(1995) | Cedar/<br>Beaver<br>(1989) | Uinta<br>(1992) | West<br>Colorado<br>River<br>(1991) | Southeast<br>Colorado<br>River<br>(1990) | Kanab<br>Creek/<br>Virgin<br>River<br>(1990-91) | Statewide<br>Total |
| COUNTIES     |                    |                                     |                |                 |                           |                           |                  |                            |                 |                                     |  |   |                    |
| Beaver       | ---                | 0 *                                 | ---            | ---             | ---                       | ---                       | ---              | 22,800                     | ---             | ---                                 | ---                                      | ---   | 22,800             |
| Box Elder    | 1,768              | 17,103                              | 20,062         | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---   | 38,933             |
| Cache        | ---                | ---                                 | 39,591         | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---   | 39,591             |
| Carbon       | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 248             | 5,645                               | ---                                      | ---   | 5,893              |
| Daggett      | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 2,318           | ---                                 | ---                                      | ---   | 2,318              |
| Davis        | ---                | 0 *                                 | ---            | 6,681           | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---   | 6,681              |
| Duchesne     | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 28,106          | 0 *                                 | ---                                      | ---   | 28,106             |
| Emery        | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 31              | 16,731                              | ---                                      | ---   | 16,762             |
| Garfield     | ---                | ---                                 | ---            | ---             | ---                       | ---                       | 4,991            | ---                        | ---             | 2,370                               | 1,354                                    | ---   | 8,715              |
| Grand        | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 0 *             | 534                                 | 1,657                                    | ---   | 2,191              |
| Iron         | ---                | 0 *                                 | ---            | ---             | ---                       | ---                       | 0 *              | 43,207                     | ---             | ---                                 | ---                                      | 255   | 43,462             |
| Juab         | ---                | 553                                 | ---            | ---             | 9,231                     | ---                       | 5,061            | ---                        | ---             | ---                                 | ---                                      | ---   | 14,845             |
| Kane         | ---                | ---                                 | ---            | ---             | ---                       | ---                       | 0 *              | ---                        | ---             | 0 *                                 | 33                                       | 2,195   | 2,228              |
| Millard      | ---                | 2,578                               | ---            | ---             | ---                       | ---                       | 68,470           | 29                         | ---             | ---                                 | ---                                      | ---   | 71,077             |
| Morgan       | ---                | ---                                 | ---            | 4,594           | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---   | 4,594              |
| Piute        | ---                | ---                                 | ---            | ---             | ---                       | ---                       | 6,661            | ---                        | ---             | ---                                 | ---                                      | ---   | 6,661              |
| Rich         | ---                | ---                                 | 9,150          | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---   | 9,150              |
| Salt Lake    | ---                | 0 *                                 | ---            | ---             | ---                       | 6,858                     | ---              | ---                        | ---             | ---                                 | ---                                      | ---   | 6,858              |
| San Juan     | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | ---             | 0 *                                 | 3,079                                    | ---   | 3,079              |
| Sanpete      | ---                | ---                                 | ---            | ---             | 1,206                     | ---                       | 31,614           | ---                        | ---             | 0 *                                 | ---                                      | ---   | 32,820             |
| Sevier       | ---                | ---                                 | ---            | ---             | ---                       | ---                       | 23,419           | ---                        | ---             | 715                                 | ---                                      | ---   | 24,134             |
| Summit       | ---                | ---                                 | 0 *            | 4,540           | 250                       | ---                       | ---              | ---                        | 1               | ---                                 | ---                                      | ---   | 4,791              |
| Tooele       | ---                | 9,270                               | ---            | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---   | 9,270              |
| Uintah       | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 31,011          | ---                                 | ---                                      | ---   | 31,011             |
| Utah         | ---                | ---                                 | ---            | ---             | 30,059                    | ---                       | ---              | ---                        | 0 *             | 0 *                                 | ---                                      | ---   | 30,059             |
| Wasatch      | ---                | ---                                 | ---            | ---             | 5,888                     | ---                       | ---              | ---                        | 289             | 0 *                                 | ---                                      | ---   | 6,177              |
| Washington   | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | 1,149                      | ---             | ---                                 | ---                                      | 4,768   | 5,917              |
| Wayne        | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | ---             | 9,216                               | ---                                      | ---   | 9,216              |
| Weber        | ---                | 0 *                                 | ---            | 12,515          | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---   | 12,515             |
| Totals       | 1,768              | 29,504                              | 68,803         | 28,330          | 46,634                    | 6,858                     | 140,216          | 67,185                     | 62,004          | 35,211                              | 6,123                                    | 7,218   | 499,854            |

\* Zero values indicate an area was mapped but water-related land use was not found.

Note: All values are in units of acres.

**TABLE 41**  
**PASTURE, GRASS HAY AND GRASS/TURF LISTED BY BASIN AND COUNTY**

| <i>COUNTIES</i> | <i>RIVER BASINS</i> |                                     |                |                 |                           |                           |                  |                            |                 |                                     |  |   | Statewide<br>Total |
|-----------------|---------------------|-------------------------------------|----------------|-----------------|---------------------------|---------------------------|------------------|----------------------------|-----------------|-------------------------------------|--|---|--------------------|
|                 | Columbia<br>(1989)  | Great Salt<br>Lake Desert<br>(1989) | Bear<br>(1986) | Weber<br>(1987) | Upper<br>Jordan<br>(1995) | Lower<br>Jordan<br>(1988) | Sevier<br>(1995) | Cedar/<br>Beaver<br>(1989) | Uinta<br>(1992) | West<br>Colorado<br>River<br>(1991) | Southeast<br>Colorado<br>River<br>(1990) | Kanab Creek/<br>Virgin River<br>(1990-91) |                    |
| Beaver          | ---                 | 0 *                                 | ---            | ---             | ---                       | ---                       | ---              | 8,130                      | ---             | ---                                 | ---                                      | ---                                       | 8,130              |
| Box Elder       | 2,501               | 10,885                              | 23,161         | 2               | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 36,549             |
| Cache           | ---                 | ---                                 | 29,118         | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 29,118             |
| Carbon          | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 191             | 4,952                               | ---                                      | ---                                       | 5,143              |
| Daggett         | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 8,832           | ---                                 | ---                                      | ---                                       | 8,832              |
| Davis           | ---                 | 0 *                                 | ---            | 16,586          | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 16,586             |
| Duchesne        | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 67,851          | 0 *                                 | ---                                      | ---                                       | 67,851             |
| Emery           | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 77              | 24,129                              | ---                                      | ---                                       | 24,206             |
| Garfield        | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | 14,049           | ---                        | ---             | 3,536                               | 619                                      | ---                                       | 18,204             |
| Grand           | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 0 *             | 340                                 | 874                                      | ---                                       | 1,214              |
| Iron            | ---                 | 0 *                                 | ---            | ---             | ---                       | ---                       | 540              | 5,325                      | ---             | ---                                 | ---                                      | 677                                       | 6,542              |
| Juab            | ---                 | 2,071                               | ---            | ---             | 4,208                     | ---                       | 2,370            | ---                        | ---             | ---                                 | ---                                      | ---                                       | 8,649              |
| Kane            | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | 534              | ---                        | ---             | 0 *                                 | 0 *                                      | 3,200                                     | 3,734              |
| Millard         | ---                 | 3,054                               | ---            | ---             | ---                       | ---                       | 10,150           | 82                         | ---             | ---                                 | ---                                      | ---                                       | 13,286             |
| Morgan          | ---                 | ---                                 | ---            | 4,180           | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 4,180              |
| Piute           | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | 14,368           | ---                        | ---             | ---                                 | ---                                      | ---                                       | 14,368             |
| Rich            | ---                 | ---                                 | 42,313         | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 42,313             |
| Salt Lake       | ---                 | 0 *                                 | ---            | 1               | ---                       | 9,370                     | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 9,371              |
| San Juan        | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | ---             | 0 *                                 | 2,597                                    | ---                                       | 2,597              |
| Sanpete         | ---                 | ---                                 | ---            | ---             | 1,056                     | ---                       | 45,804           | ---                        | ---             | 0 *                                 | ---                                      | ---                                       | 46,860             |
| Sevier          | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | 25,445           | ---                        | ---             | 546                                 | ---                                      | ---                                       | 25,991             |
| Summit          | ---                 | ---                                 | 2,655          | 23,748          | 2,072                     | ---                       | ---              | ---                        | 2,474           | ---                                 | ---                                      | ---                                       | 30,949             |
| Tooele          | ---                 | 15,400                              | ---            | ---             | ---                       | ---                       | 197              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 15,597             |
| Uintah          | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 42,484          | ---                                 | ---                                      | ---                                       | 42,484             |
| Utah            | ---                 | ---                                 | ---            | ---             | 44,706                    | ---                       | ---              | ---                        | 0 *             | 0 *                                 | ---                                      | ---                                       | 44,706             |
| Wasatch         | ---                 | ---                                 | ---            | ---             | 12,282                    | ---                       | ---              | ---                        | 1,399           | 0 *                                 | ---                                      | ---                                       | 13,681             |
| Washington      | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | 488                        | ---             | ---                                 | ---                                      | 5,710                                     | 6,198              |
| Wayne           | ---                 | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | ---             | 7,892                               | ---                                      | ---                                       | 7,892              |
| Weber           | ---                 | 0 *                                 | ---            | 36,074          | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 36,074             |
| <b>Totals</b>   | <b>2,501</b>        | <b>31,410</b>                       | <b>97,247</b>  | <b>80,591</b>   | <b>64,324</b>             | <b>9,370</b>              | <b>113,457</b>   | <b>14,025</b>              | <b>123,308</b>  | <b>41,395</b>                       | <b>4,090</b>                             | <b>9,587</b>                              | <b>591,305</b>     |

\* Zero values indicate an area was mapped but water-related land use was not found.

Note: All values are in units of acres.

**TABLE 42  
GRAIN LISTED BY BASIN AND COUNTY**

|            | RIVER BASINS       |                                     |                |                 |                           |                           |                  |                            |                 |                                     |  |   |                    |
|------------|--------------------|-------------------------------------|----------------|-----------------|---------------------------|---------------------------|------------------|----------------------------|-----------------|-------------------------------------|--|---|--------------------|
|            | Columbia<br>(1989) | Great Salt<br>Lake Desert<br>(1989) | Bear<br>(1986) | Weber<br>(1987) | Upper<br>Jordan<br>(1995) | Lower<br>Jordan<br>(1988) | Sevier<br>(1995) | Cedar/<br>Beaver<br>(1989) | Uinta<br>(1992) | West<br>Colorado<br>River<br>(1991) | Southeast<br>Colorado<br>River<br>(1990) | Kanab Creek/<br>Virgin River<br>(1990-91) | Statewide<br>Total |
| COUNTIES   |                    |                                     |                |                 |                           |                           |                  |                            |                 |                                     |  |   |                    |
| Beaver     | ---                | 0 *                                 | ---            | ---             | ---                       | ---                       | ---              | 2,361                      | ---             | ---                                 | ---                                      | ---                                       | 2,361              |
| Box Elder  | 702                | 8,194                               | 35,227         | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 44,123             |
| Cache      | ---                | ---                                 | 34,348         | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 34,348             |
| Carbon     | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 0 *             | 299                                 | ---                                      | ---                                       | 299                |
| Daggett    | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 7               | ---                                 | ---                                      | ---                                       | 7                  |
| Davis      | ---                | 0 *                                 | ---            | 4,604           | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 4,604              |
| Duchesne   | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 6,583           | 0 *                                 | ---                                      | ---                                       | 6,583              |
| Emery      | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 0 *             | 1,229                               | ---                                      | ---                                       | 1,229              |
| Garfield   | ---                | ---                                 | ---            | ---             | ---                       | ---                       | 1,530            | ---                        | ---             | 343                                 | 180                                      | ---                                       | 2,053              |
| Grand      | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 0 *             | 47                                  | 33                                       | ---                                       | 80                 |
| Iron       | ---                | 0 *                                 | ---            | ---             | ---                       | ---                       | 0 *              | 6,229                      | ---             | ---                                 | ---                                      | 0 *                                       | 6,229              |
| Juab       | ---                | 0 *                                 | ---            | ---             | 3,755                     | ---                       | 2,396            | ---                        | ---             | ---                                 | ---                                      | ---                                       | 6,151              |
| Kane       | ---                | ---                                 | ---            | ---             | ---                       | ---                       | 0 *              | ---                        | ---             | 0 *                                 | 20                                       | 126                                       | 146                |
| Millard    | ---                | 513                                 | ---            | ---             | ---                       | ---                       | 21,312           | 11                         | ---             | ---                                 | ---                                      | ---                                       | 21,836             |
| Morgan     | ---                | ---                                 | ---            | 1,862           | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 1,862              |
| Piute      | ---                | ---                                 | ---            | ---             | ---                       | ---                       | 1,547            | ---                        | ---             | ---                                 | ---                                      | ---                                       | 1,547              |
| Rich       | ---                | ---                                 | 2,016          | ---             | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 2,016              |
| Salt Lake  | ---                | 0 *                                 | ---            | ---             | ---                       | 2,267                     | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 2,267              |
| San Juan   | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | ---             | 0 *                                 | 378                                      | ---                                       | 378                |
| Sanpete    | ---                | ---                                 | ---            | ---             | 51                        | ---                       | 12,368           | ---                        | ---             | 0 *                                 | ---                                      | ---                                       | 12,419             |
| Sevier     | ---                | ---                                 | ---            | ---             | ---                       | ---                       | 5,862            | ---                        | ---             | 70                                  | ---                                      | ---                                       | 5,932              |
| Summit     | ---                | ---                                 | 0 *            | 844             | 82                        | ---                       | ---              | ---                        | 0 *             | ---                                 | ---                                      | ---                                       | 926                |
| Tooele     | ---                | 3,371                               | ---            | ---             | ---                       | ---                       | 0 *              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 3,371              |
| Uintah     | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | 3,356           | ---                                 | ---                                      | ---                                       | 3,356              |
| Utah       | ---                | ---                                 | ---            | ---             | 17,688                    | ---                       | ---              | ---                        | 0 *             | 0 *                                 | ---                                      | ---                                       | 17,688             |
| Wasatch    | ---                | ---                                 | ---            | ---             | 1,349                     | ---                       | ---              | ---                        | 54              | 0 *                                 | ---                                      | ---                                       | 1,403              |
| Washington | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | 221                        | ---             | ---                                 | ---                                      | 826                                       | 1,047              |
| Wayne      | ---                | ---                                 | ---            | ---             | ---                       | ---                       | ---              | ---                        | ---             | 3,642                               | ---                                      | ---                                       | 3,642              |
| Weber      | ---                | 0 *                                 | ---            | 5,826           | ---                       | ---                       | ---              | ---                        | ---             | ---                                 | ---                                      | ---                                       | 5,826              |
| Totals     | 702                | 12,078                              | 71,591         | 13,136          | 22,925                    | 2,267                     | 45,015           | 8,822                      | 10,000          | 5,630                               | 611                                      | 952                                       | 193,729            |


\* Zero values indicate an area was mapped but water-related land use was not found.  
Note: All values are in units of acres.

Current schedules will map the state every seven to ten years. As data are available, the various tables and maps presented in this report will be updated. Current data may be obtained from the Division of Water Resources.



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